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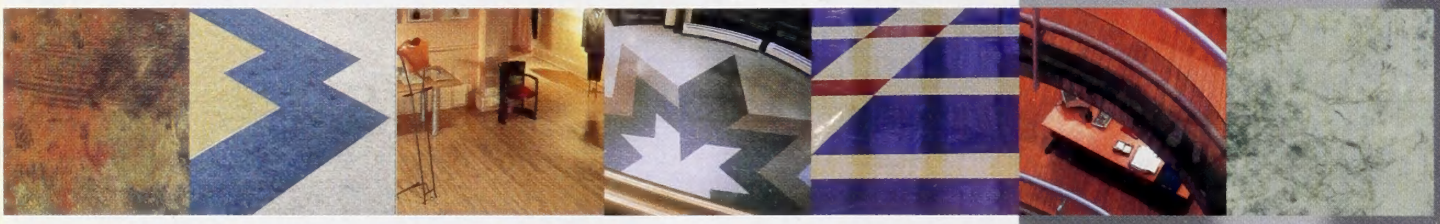
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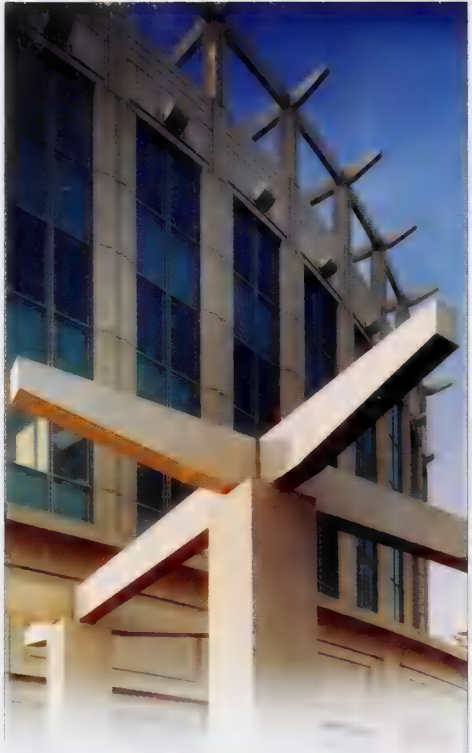
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WEB PRODUCTION	Laurie Meisel, *laurie_meisel@mcgraw-hill.com*
EDITORIAL SUPPORT	Linda Ransey, *linda_ransey@mcgraw-hill.com* Randi Greenberg, *randi_greenberg@mcgraw-hill.com*
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RESEARCH	Ellen Halfond, *ellen_halfond@mcgraw-hill.com*
CIRCULATION	Maurice Persiani, *maurice_persiani@mcgraw-hill.com* Brian McGann, *brian_mcgann@mcgraw-hill.com*
ADVERTISING PRODUCTION	Stephen R. Weiss, *stephen_weiss@mcgraw-hill.com*
FINANCE	Ike Chong, *ike_chong@mcgraw-hill.com*
SPECIAL SERVICES	Charles Pinyan, *cpinyan@mcgraw-hill.com*
REPRINTS	Wilda Fabelo, *architectreprints@businessweek.com*

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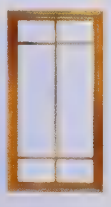
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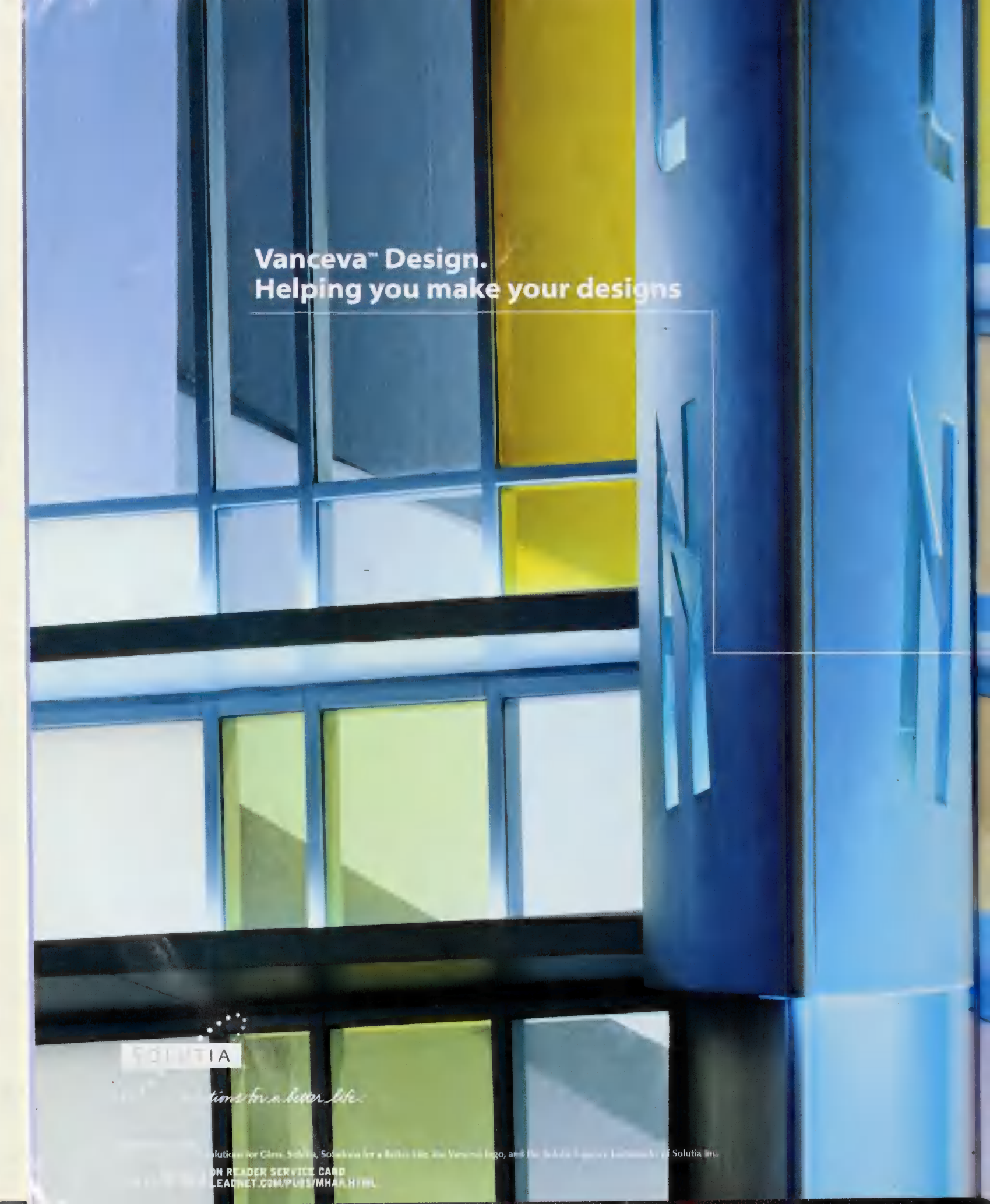
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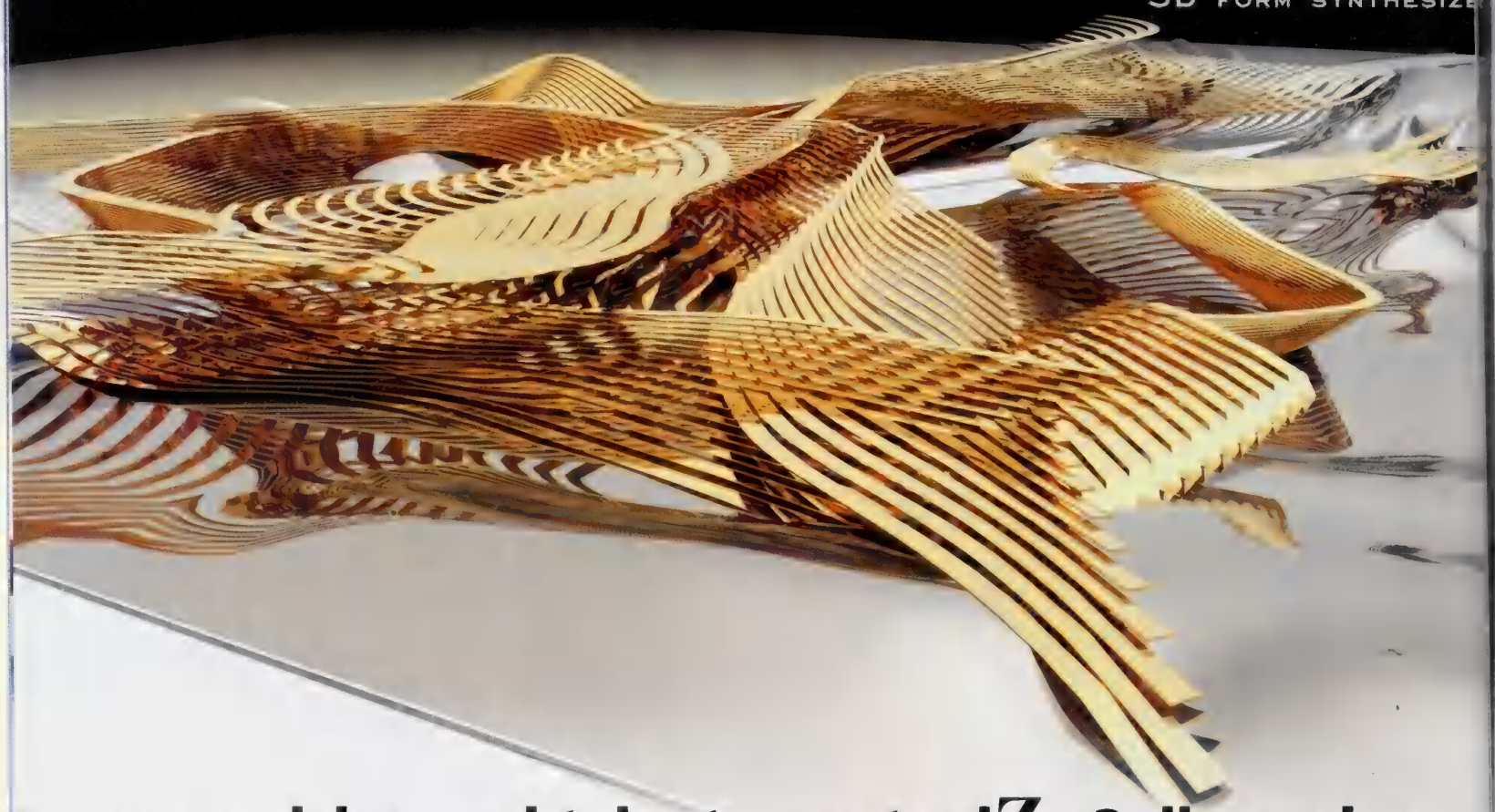
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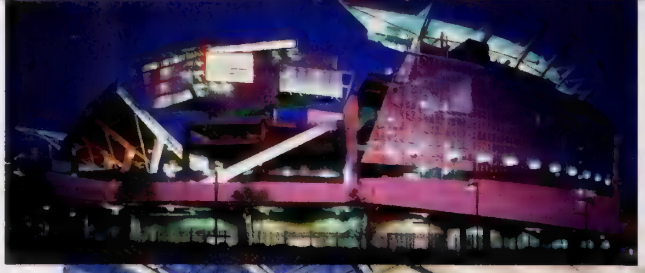
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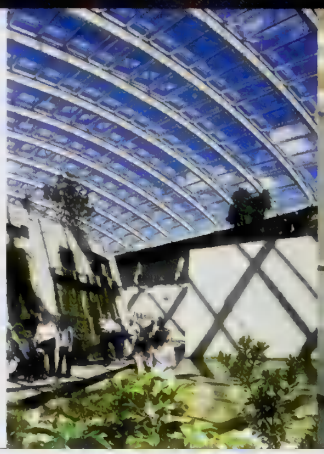
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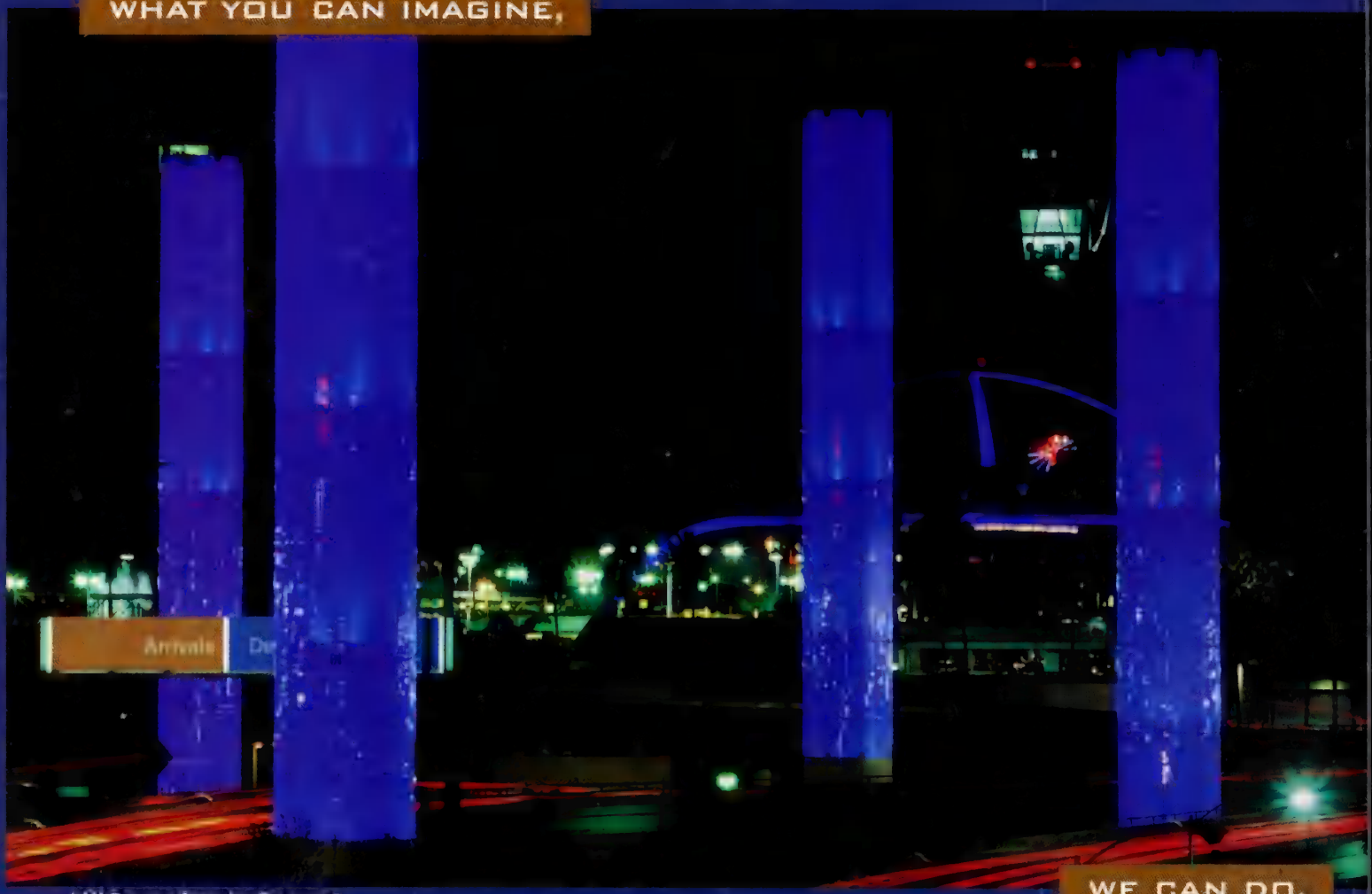
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- **Thompson E. Penney, FAIA,** President Elect of the AIA, shares his passion: architects in novels.
- Seattle architect Jito da Silva examines the details of **Steven Holl's** Bellevue Art Museum.
- A review of **Celluloid Skyline**, a new book by author and architect James Sanders.

Plus, **five other essays, interviews and reviews** from the debut issue of *In the Cause of Architecture*

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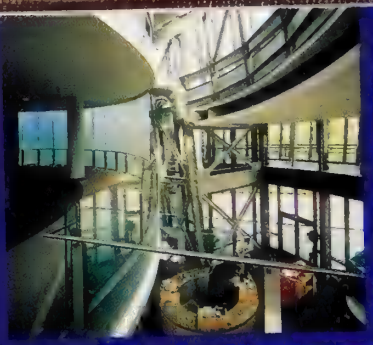
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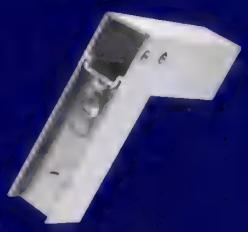
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The Case for a Competition

Editorial

By Robert Ivy, FAIA

Passions and confusion hover over the former World Trade Center site like lingering smoke. An international design competition could help clear the air downtown and produce creative, worthwhile structures that advance our whole culture. Without a competition, economic pressure and cronyism may allow any building done there to devolve toward architectural mediocrity, while the world loses a chance for a new vision. However, competitions are fraught with possibilities, good and bad, and are not panaceas: They require the right framework to succeed.

The first requirement may be the hardest—an agreed-on program for the whole parcel. While cleanup efforts accelerate and leadership becomes more apparent, the simplest outlines of a consensus are emerging from the chaos. Conversations and roundtables mention a memorial to anchor the hallowed 16 acres, surrounded by housing as well as commercial and office space, with a cultural or educational component included for the long-term, civic weal. Mayor Bloomberg has informally endorsed similar programmatic goals. The ensuing months should promote debate, community discussions, and planning, resulting in a hard-nosed, realistic program for development.

The commissioning authority (yet to be defined, but bearing the stamp of governmental authority and fiscal responsibility) should approve a detailed plan, outlining infrastructure, urban, and development requirements before anything is built. Then we should refocus our gaze upward.

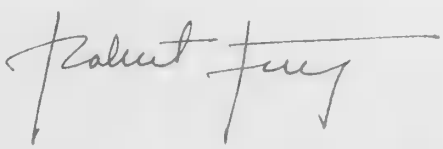
An international competition of architects, conducted at the highest level of oversight and participation, committed to the unvarnished, uncompromised execution of the designs for the entire site, would remove the ensuing commission from the political arena and give the city a shot at evolving greatness. The memorial, for example, calls for an emotional resonance that great artists and architects can provide if given a framework removed from cronyism or political pressure.

Wedding poetic building to utilitarian purposes may sound contradictory, but great examples already exist abroad—in Japan, for example, in the work of 2002 AIA Gold Medalist Tadao Ando, who routinely weds nature and simple materials to powerful effect. A competition could unleash an unprecedented worldwide design response and encourage an allusive, powerful work, as did the competition for the Chicago Tribune tower earlier in the 20th century (which catapulted nonwinner Eliel Saarinen into prominence) or the Vietnam Memorial in Washington, D.C.

Competitions can produce mixed results, particularly when finalists' plans are allowed to be amalgamated. Political maneuvering mired the competition for the Reichstag, Germany's parliament building in Berlin, in controversy, despite the fact that the finalists' schemes promoted the technologically advanced, stunning revitalization of a formerly reviled building. Competitions can provoke critical attacks. Earlier, the United Nations Headquarters, a Modernist icon along the East River, wedded international luminaries, including the French architect Le Corbusier and New Yorker Wallace Harrison, but provoked divided opinion on its unveiling.

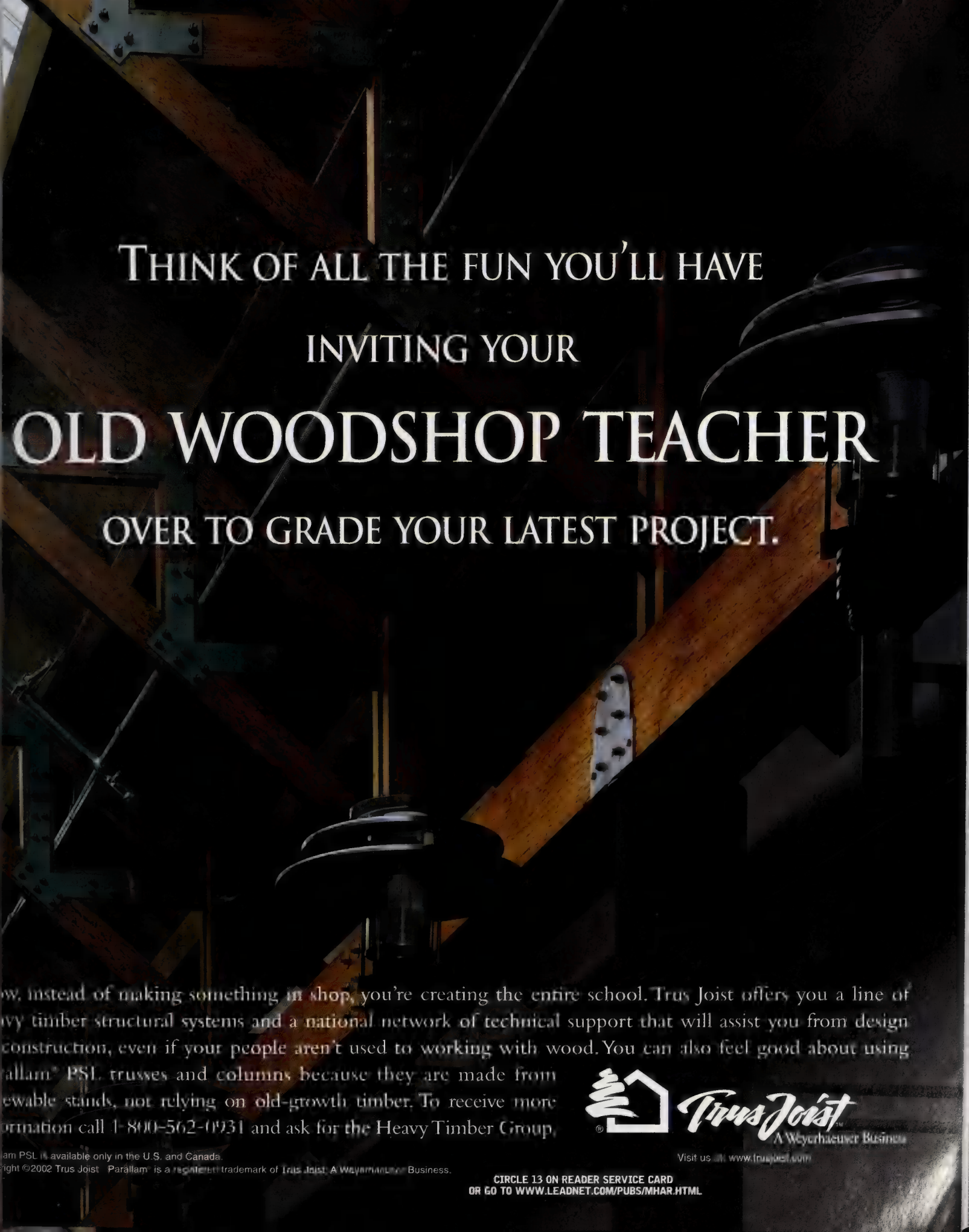
No one wants the status quo. Embedded in the requirements for all structures on the site should be ideas that propel the project into this new century. Symbolically, new structures will project our image globally: The world is watching what we will build.

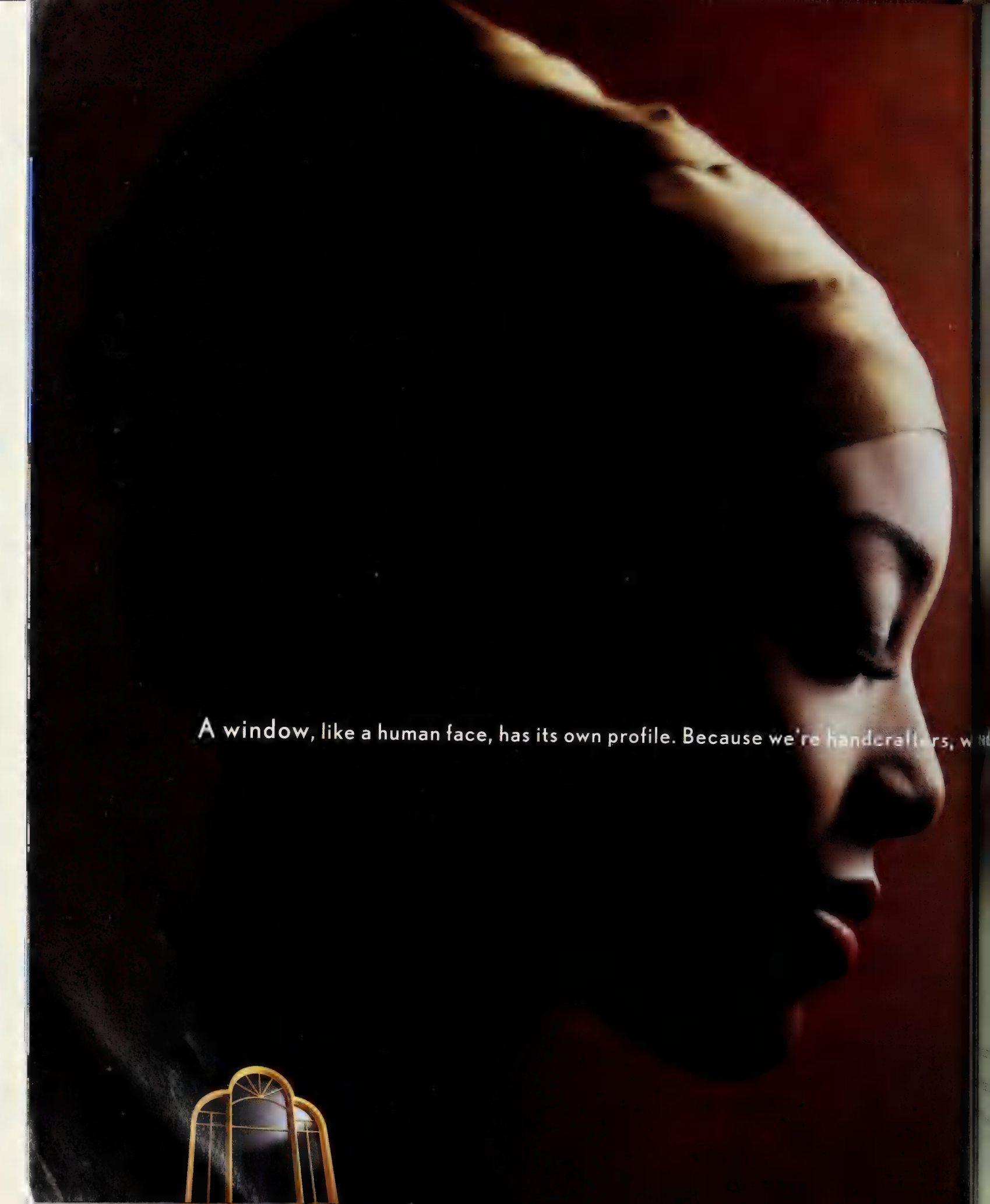
An international competition would reflect New York's continued preeminence among global cities. The intent would not be to subvert the excellent current planning for lower Manhattan by New York architects and engineers, much of which they have performed voluntarily; indeed, many of them would participate, either as individual finalists or as partners in larger groups executing the ultimate solutions. Instead, a competition would impel the entire design community, New Yorkers included, toward greatness. May the best ideas win.





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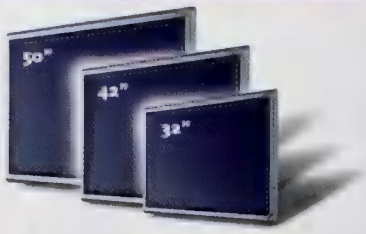
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Letters

Well done, Mr. Murcutt
The awarding of the Pritzker Prize to Glenn Murcutt is a wonderful moment for world architecture. It signifies a long overdue recognition of truly responsible, correct, humble, and, above all, human architecture and design philosophy.

In a world where such values are so frequently forgotten in the shadows of overhyped individuals and buildings that are accorded, often inappropriately, "superstar" status by our profession and popular culture, it is tremendously gratifying to see this award happen.

Anyone who really cares about great architecture should be delighted. Well done, and so very well deserved, Mr Murcutt.
—James C. Kelly
Via e-mail

All in the same boat
With due respect for, but in response to, Craig Purcell's letter [Letters, April 2002, page 18], I would like to suggest that his comments need not be confined to design activities. I do take some issue with his remark about those "relegated to the spec department or to doing details in the back room." Surely, he is not prescribing a set of second-class citizens in the profession, who are hidden away but ever so vital to getting the design on the streets properly!

That aside (yes, I do feel better), Mr. Purcell's views are also fully applicable to the detailing process and the production of quality working drawings. I would suggest that to upgrade design drafting skills, but to let detailing skills go as they are, is counterproductive. The best way to bring good design to fruition is to produce good, comprehensive, informative, and eminently clear detailing, within equally well executed working drawings. While one may possess high skill in designing but have poor drafting skills, the detailer, in all too many instances now, is suffering from marginal drafting skills and a drastic lack of technical knowledge, both of which are essential to the detailing process.

Seems we're all in the same canoe—may be we should all paddle in the same direction! But maybe we all should check our "paddles" to see their flaws. Maybe this is all controlled by one Muse; if not, then several of them are being muted.
—Ralph W. Liebing
Cincinnati, Ohio

Home is where the cavern is
After seeing the houses in the last issue of RECORD, I wondered if there had ever been a study done to see just how happy the people were who had to live in them: the big cavernous spaces, cantilevered slabs, sheets of cold glass, and formally arranged showroom furniture.

What do the people do in these museumlike structures? Do they wander aimlessly around from room to room in lonely isolation, or do they lie all day on one of those odd looking beach chairs, dreaming of the busy streets of New York City or Paris?

The dream of every architect is to design one of these palaces, but would they really want to live in one?
—Roy Euker, AIA
New York City

A sense of hope
The theme of the March issue, "Design and the City," was also about hope after the events of September 11. The Milwaukee Art Museum illustrates beautifully that new ideas are possible and can help lift us up. The community-oriented work felt open, welcoming. The Practice Matters essay [page 55] reminds us once again that it will take an architect's strong communication skills to convince a client that architecture should be shaped by hope. Charles Linn raises an important issue about how the architect communicates security in a world that feels increasingly unsafe. Provocative essays are still as important as stunning photographs—maybe more so right now.
—Kenneth Caldwell
Oakland, Calif.

Seconding the motion
The article that impressed me most in the March issue of RECORD was the Practice Matters column, "Fear and Form" [page 55]. As a marketing and practice consultant to architects, I'm constantly bombarded with ideas about new marketing opportunities, many of which substitute current trends for good design. One of the most disconcerting of these marketing "opportunities" has surfaced since 9/11 and is the exact subject of your article.

While many firms have resisted the temptation to jump on the bandwagon of fear, some have indeed attempted to differentiate themselves in the eyes of prospective clients by raising the specter of terrorism and destruction, then pacifying their clients by proposing design programs that emphasize "resistance to attack" above all else. It's as if a building that appears safe will indeed be safe—a proposition that we know to be incorrect and counterproductive.

Thank you for bringing this highly negative and disturbing trend to the pages of RECORD. Hopefully, author Charles Linn's clear statement of the problem will reach much of the professional readership. If not, the vividly depressing picture he paints of Stalin-era buildings probably will.
—Guy Esberg, principal,
Guy Esberg & Co.
San Anselmo, Calif.

Digging in
The comments made by Robert Campbell at the end of "The Big Dig, What's Up Under Boston?" [March 2002, page 84] bring up important points of what should happen to the space below the Central Artery. The whole notion of creating "a place that reconnects the city to its harbor" is a valid one, but the way in which it is carried out is critical. With so much emphasis put on urban redevelopment and planning now, it would only seem suitable that the new design show some inventiveness. Of the proposals, not one solution seems to singularly solve the problem.

The proposal for one continuous greenway is a romantic but impractical one. With the expansion and density of this city, it would be advantageous to reactivate the area. I am not proposing building over the entire site, but rather finding the balance between green and the city. This cannot be done unless there is a deregulation of the zoning laws and plots of land are divided. Parts of the required 75 percent of "public open space" could be seen as unused areas. Infrastructure could be integrated with this park landscape to create jobs and attractions. These things would activate this public space and give it new meaning.

The city is driven by commerce, and this Artery project is presenting an opportunity to do something new. You can't create open space and expect it to gain meaning. The old ideas of the park and city as two opposing entities are dead. In keeping with the character of the city, its use dictates meaning. The area could be an integration of languages between open public space and the city. Now, when presented with this opportunity, Boston has to take the resolution one step further.
—Andrew Sarna
Bristol, R.I.

Letters

Shifting perceptions

I was struck by the insights Robert Campbell expressed in the December 2001 and February 2002 Critiques [page 37 and page 53, respectively]. Perhaps I should not be surprised that events of the magnitude of 9/11 should give rise to writing as thoughtful as these two pieces. However, I found Campbell's analysis to be unique among post-9/11 commentary in their recognition of a dramatic shift within our own perceptions and the impact of this on architectural discourse. Time, I suspect, will confirm his view.
—Alexander Seidel, FAIA
San Francisco, Calif.

Ups and downs of a new Berlin

"The New Berlin" featured in the March issue [page 76] recalled my own experience when I visited Berlin in 1999. I can attest to the proliferation of cranes dominating the skyline and the feverish pace of ongoing construction whose scope was gigantic. I was visiting Berlin because I wished to see, firsthand, the rebuilding and reshaping of Berlin once again into the capital city of Germany. The number of famous contemporary architects who were responsible for most of the major new projects was icing on the cake!

What I found was both exhilarating and disappointing. The sheer size and modernity of the new construction, with its emphasis on steel structure and glass facades, was impressive but hardly expressive of what I had hoped might constitute the beginnings of a unique and beautiful capital of a transformed Germany; and the juxtaposition of so many of the new buildings without any apparent overriding concept seemed to diminish the quality of the individual buildings themselves.

The building I was most anxious to see was David Libeskind's Jewish Museum because I recalled a *New Yorker* article describing it as the finest new building in Berlin. In "The New Berlin," author James Russell quotes Michael Blumenthal as saying, "It has surpassed my expectations." While I toured the building before its exhibitions had been installed, my own response to the museum was one of disappointment. Its exterior was not impressive as pure form and even less so due to its imperfect thin steel skin; but I still held out hope that the interior spaces might be powerful and perhaps beautiful. They were not. As a building meant to convey the "Jewish experience in Europe," for me, the richness, tragedy, and essential uniqueness of Jewish history was largely marginalized. Its most successful aspect was the dramatic experience of entering underground from the adjoining museum; but this brief but lovely journey only accentuated the bland, nondefining experience evoked by the museum itself.

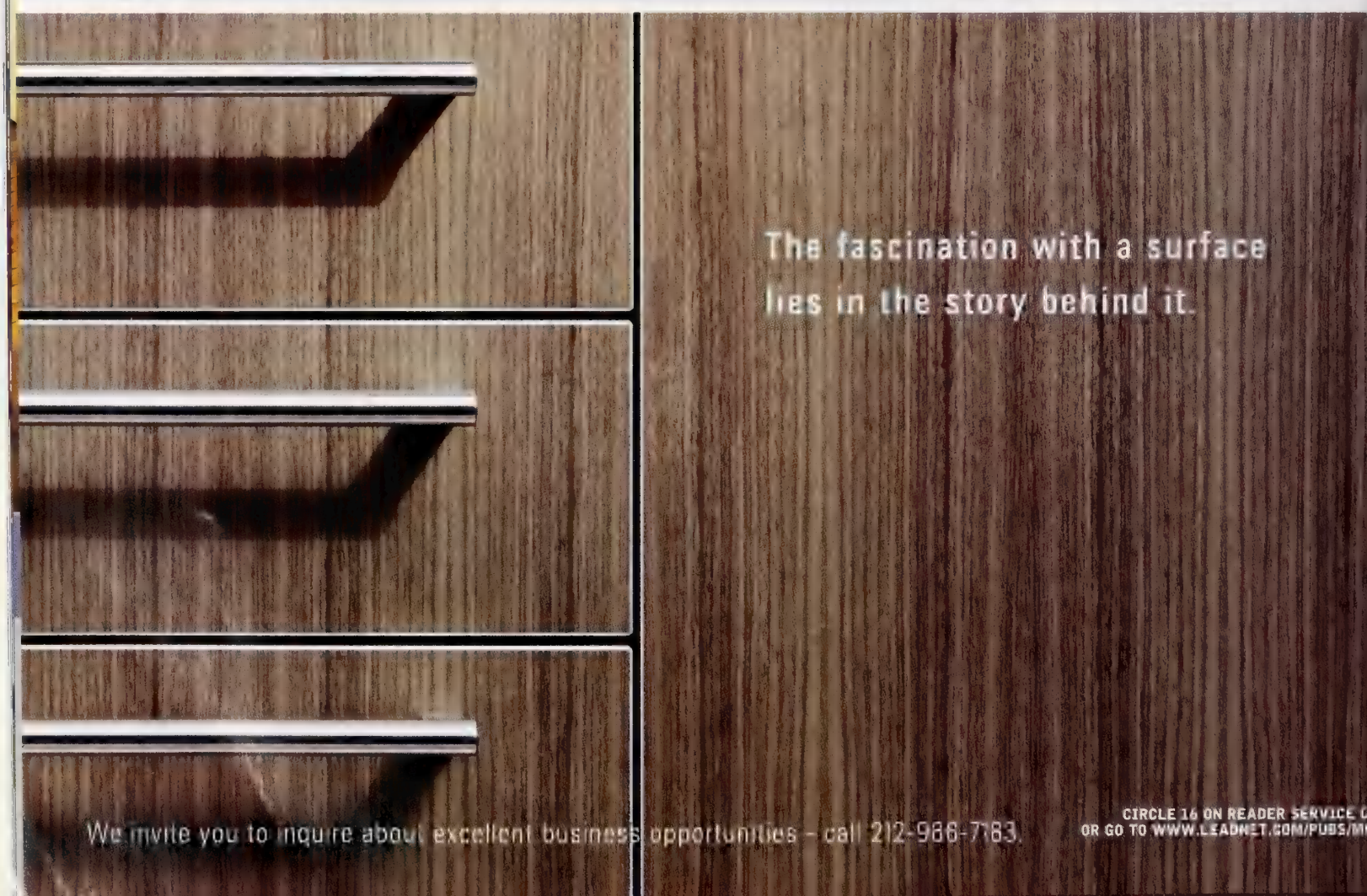
For me, the most successful new urban structure was Mies van der Rohe's art museum; it was not a very good museum, but it added great monumentality and verve to its urban setting.

As a final note, let me add that the one essential ingredient shared by all of the great cities of the world, and perhaps shared by the Berlin of a century ago, is livability. To this observer, the new architecture of Berlin is reducing this essential characteristic.
—J. West, AIA
Sarasota, Fla.

Bureaucratic building

When the late Samuel Mockbee chose a rural county in Alabama for his in situ classroom experiments into providing innovative shelter for the area's poverty-stricken inhabitants, it was telling that he chose a district that had no building-code infrastructure.

It is doubtful that the typical hidebound, rigid bureaucratic building and zoning departments that



characterize many of our cities and counties would have allowed any of the Rural Studio's structures to be built, especially those utilizing a "green" architecture of recycled and discarded materials—even though these buildings were constructed under the supervision of professionals trained in the building arts.

The underlying principles of building and zoning regulations are not at fault: public safety and health along with an orderly allocation of land resources that best protect one's property while providing for the benefit of all.

The problem is when our building methodologies become ensnared by self-serving and bloated bureaucratic intransigence to all but their favorite special interests and the building status quo: trades, suppliers, officials, inspectors, insurance providers, lenders, real estate and development consortiums, politicians and regulatory bean-counters who feel threatened by anything that falls outside of their profitable, uniform box—a box they have created for themselves under the umbrella of legally sanctioned bureaucratic control.

This young generation of architects is facing a formidable dilemma: Those in control of how and where and if the architect's designs come to fruition represent a deeply entrenched and entangled web of influence and collusion resistant to change and demanding obeisance for inclusion into the system.

How can the profession overcome the bean-counters' penchant for mindless conformity to outdated and self-serving regulations and the bureaucrats' league with special interests to provide the inspiration and innovation that is desperately needed in finding equitable solutions to the housing and environmental crises upon us?
—Daniel John Bornt
Champaign, Ill.

Better, bitter sublime

After reading Michael Sorkin's Critique of Rem Koolhaas in your January 2002 issue [page 51], I have to ask one question: Do you guys employ any editors on your staff?

In slogging through Sorkin's almost impenetrable prose, I was transported back to my "Introduction to Theory" class, and some of the more pretentious design juries at, yes, the Harvard GSD. And while I think I agree with what I perceive to be Sorkin's basic premise, that it is more "hip" for Koolhaas to be the insightful observer of the modern urban condition that he is than to propose anything actually prescriptive, does the reader really need to have a GSD education, or the patience of Job, to arrive at this point?

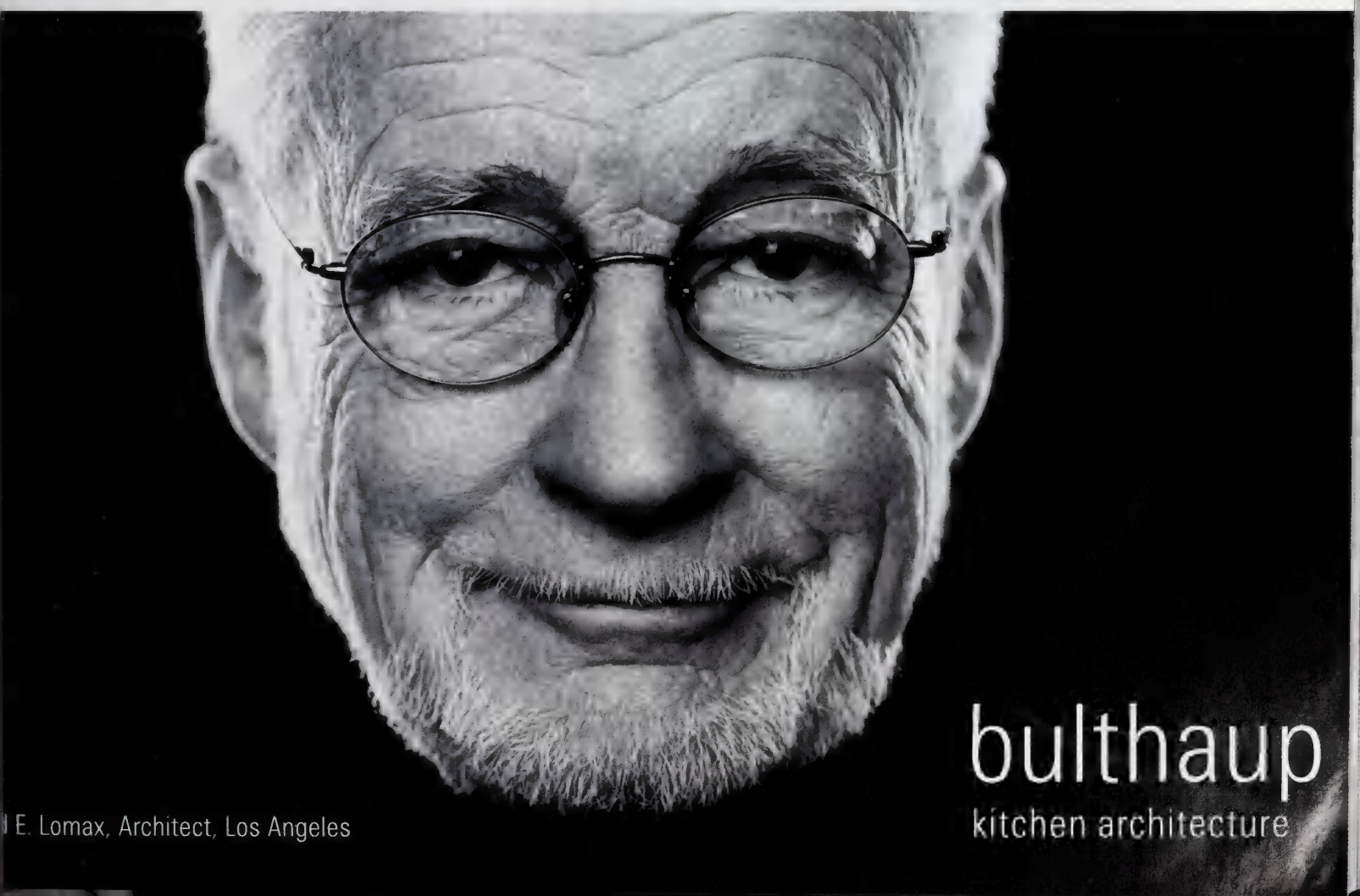
Sure, Sorkin can turn a clever phrase ("disco Mylar," "flogging the dead horse of humane urbanity," "the landscape of his bitter sublime"), but whom is he trying to impress with words like "portmanteau," "prosody," or "equipotential"? Is it possible that he is not capable of making his point by speaking clearly?

I do not see how architectural academics like Sorkin will ever be invited to the table with the legislators, businessmen, and the other actual decision makers who will determine if, and how, the modern city will develop, as long as they continue to project the kind of "snoot cocked" (to use Sorkin's phrase), get-paid-by-the-syllable pretension, as evidenced in this piece.
—Robert Gross
Brookdale Development
Allentown, Pa.

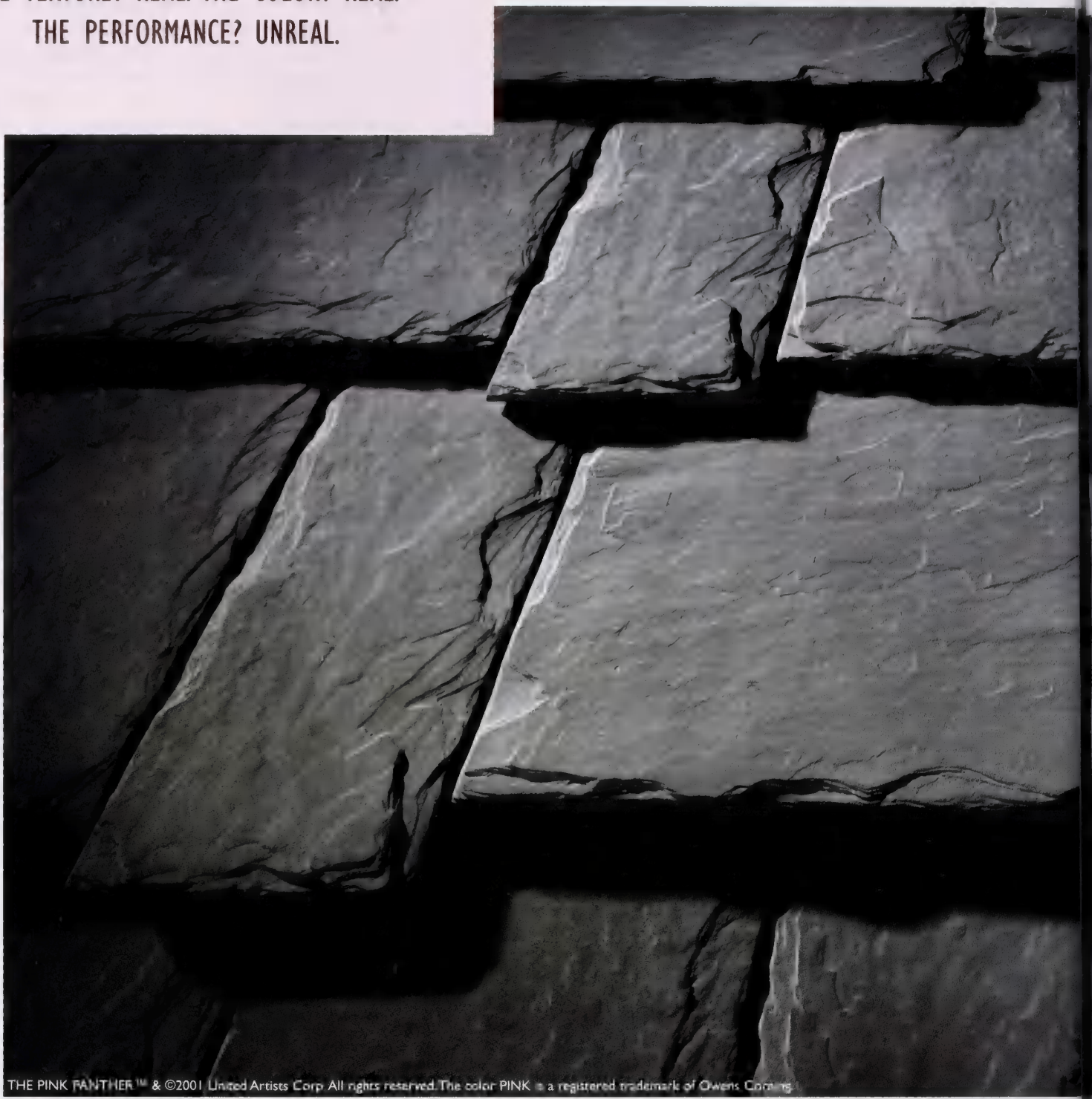
Corrections

In the April 2002 issue, page 26, a news item entitled "Green building plan to affect $1.2 billion in L.A. college construction" mistakenly called DMJMH+N a construction management firm. DMJMH+N is a full-service A/E design firm, offering a range of services, including construction management. On page 24 of the issue, it was Moshe Safdie & Associates that was selected to design a new federal courthouse in Mobile, Alabama, not Wolf Architecture, as reported.

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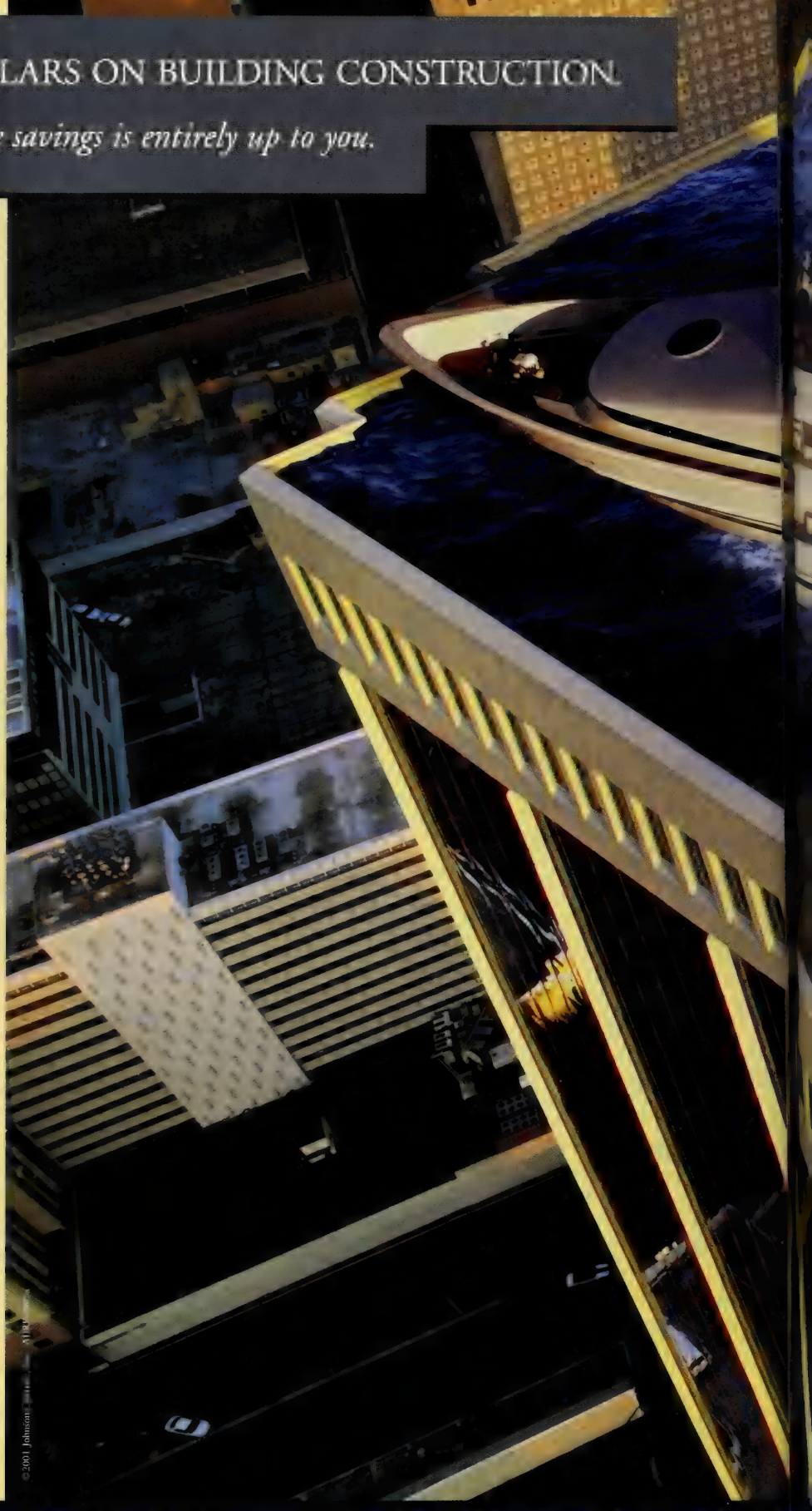
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Record News

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Educators discuss future p. 54

Australian Glenn Murcutt awarded Pritzker Prize

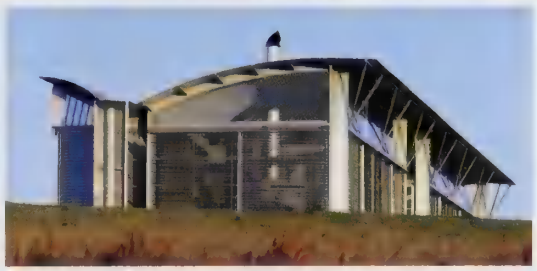
An iconoclast architect widely credited for developing an identifiable modern residential vernacular for Australia, Glenn Murcutt, Hon. FAIA, has been named recipient of the 2002 Pritzker Architecture Prize. Murcutt (see interview on the following page) works on his own with no staff, completes only a handful of projects each year, has only built in his home country of Australia, and regularly turns away work. Viewed by his Australian contemporaries as the key major influence on environmentally conscious design in that country, Murcutt lectures worldwide about 'green' modern design.

Although widely respected in his own country, Murcutt is not as well known outside of Australia. His selection is a departure—perhaps a deliberate one—for the Pritzker Prize jury, which awarded Rem Koolhaas, Jacques Herzog, and Pierre de Meuron—three architects who have received abundant press coverage—with the prize in the past two years. Murcutt is not as hip or fashionable on the global stage as the most recent laureates—he's far more pragmatic and focused on craft. 2002 Pritzker Prize jury chair J. Carter Brown says, "In an age obsessed with celebrity, the glitz of our 'starchitects,' backed by large staffs and copious public relations support, dominates the headlines. As a total contrast, our laureate works in a one-person office on the other side of the world from much of the architectural attention."

The first Australian to win the Pritzker Prize, Murcutt will be presented with a $100,000 grant and a bronze medallion as the 26th honoree of the Pritzker Prize in a May 29 ceremony at Michelangelo's Campidoglio in Rome.









Work by Glenn Murcutt, all in Australia, includes (from top) the Marika-Alderton House (1994), in Northern Territory; the Magney House (1984), in Bingie Bingie; and the C. Fletcher and A. Page House (2000), in Kangaroo Valley.

"It's beyond anything I possibly could have imagined. It's such an honor and a privilege to join those before me," Murcutt told RECORD. "It means that at one level in my country, which is a fairly conservative country, this will raise the bar."

Born in 1936 and educated at the University of New South Wales, Murcutt has had his own practice since 1969. His initial projects in the early 1970s were interpretations of the Modernist work of Ludwig Mies van der Rohe. The majority of his completed work in the past 20 to 30 years has comprised single-family homes that respond to the Australian landscape and climate, with incorporated features for sun-screening, natural ventilation, and recycling of rain water. *John E. Czarnecki, Assoc. AIA*

PRITZKER PRIZE LAUREATES

1979 **Philip Johnson** United States
1980 **Luis Barragán** Mexico
1981 **James Stirling** Great Britain
1982 **Kevin Roche** United States
1983 **I.M. Pei** United States
1984 **Richard Meier** United States
1985 **Hans Hollein** Austria
1986 **Gottfried Boehm** Germany
1987 **Kenzo Tange** Japan
1988 **Gordon Bunshaft** United States
Oscar Niemeyer Brazil
1989 **Frank O. Gehry** United States
1990 **Aldo Rossi** Italy
1991 **Robert Venturi** United States
1992 **Alvaro Siza** Portugal
1993 **Fumihiko Maki** Japan
1994 **Christian de Portzamparc** France
1995 **Tadao Ando** Japan
1996 **Rafael Moneo** Spain
1997 **Sverre Fehn** Norway
1998 **Renzo Piano** Italy
1999 **Sir Norman Foster** Great Britain
2000 **Rem Koolhaas** The Netherlands
2001 **Jacques Herzog and Pierre de Meuron** Switzerland
2002 **Glenn Murcutt** Australia

OFF THE RECORD

The new building for the University of Minnesota College of Architecture and Landscape Architecture by Steven Holl with Vince James will be completed this month. When dedicated this fall, it will be named Ralph Rapson Hall, in honor of the Minnesota architect who was head of the school for three decades.

Moshe Safdie & Associates has been selected by GSA in a competition to design a new federal courthouse in Mobile, Alabama.

The Natural History Museum of Los Angeles County has announced five finalists for a $200 to $300 million renovation and expansion, which will replace earlier additions to the museum's original 89-year-old building. The candidates are David Chipperfield Architects of London; Foster and Partners of London; Herzog & de Meuron of Switzerland; Steven Holl Architects of New York; and Machado and Silvetti of Boston.

May 22 is the 100th anniversary of the birth of Marcel Breuer, who died in 1981.

The finalists for the new Symphony Center for the Atlanta Symphony Orchestra are Santiago Calatrava of Spain and Switzerland; Bing Thom of Vancouver, British Columbia; and Danish firm Schmidt, Hammer & Lassen. The symphony narrowed the list of finalists, which originally included Mack Scogin and Merrill Elam of Atlanta; Steven Holl Architects of New York; and Moshe Safdie & Associates of Somerville, Massachusetts.

Baltimore firm Grieves, Worrall, Wright and O'Hatnick has been selected for an $85 million museum and orientation center complex at Mt. Vernon, George Washington's estate in northern Virginia.

IKEA will anchor a 1.6-million-square-foot mall that it is building in Moscow.

Murcutt speaks of his work, frustrations

RECORD news editor John Czarnecki, Assoc. AIA, spoke with Pritzker Prize winner Glenn Murcutt, Hon. FAIA (see story, previous page), about his career, his work, and ecologically sustainable architecture.



One of Murcutt's few public buildings is the Boyd Education Centre (1999).

ARCHITECTURAL RECORD: *Do you have any desire to complete a project in a country other than Australia?*

GLENN MURCUTT: No. I've got a waiting list of clients here in Australia, a country I know best. I don't feel the need to build all over the world.

RECORD: *You've been a sole practitioner for more than three decades, and you've said that you have helped to establish about 16 new practices in Australia by giving younger architects projects that you do not have time to complete. Your practice has influenced a whole generation of Australian architects.*

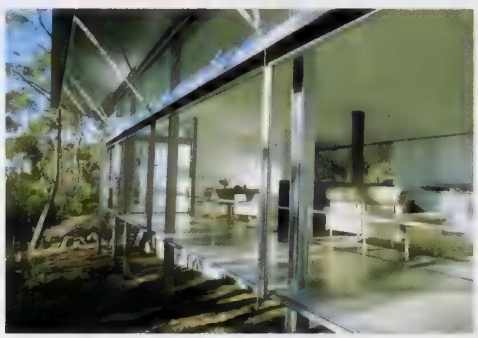
MURCUTT: I've structured a way of practice that was not really in existence when I went into practice [in the 1960s]. I've shown that you can survive [as a sole practitioner], albeit not financially incredibly well-off, but I've survived. Young architects have seen that one can actually start practicing architecture without having to be bound to working in a big practice for the rest of their lives. The corporate architect is no longer seen as the only way to practice in Australia—there are many young architects practicing alone or with just one or two people.

RECORD: *You've also had an influence in the implementation of building materials that are outside the norm in today's architectural practice.*

MURCUTT: I work with materials that were once regarded as something you'd build a shed with, or materials that were largely discarded. But they're very economical materials to work with and you can deal with them in a rational way. It is the idea of the core of truth in working with these materials—the absolute understanding of the nature of the materials—that allows the architecture to go beyond the mundane. I wish more people would understand the true costs of materials—we're all too superficial about it.

RECORD: *What are your frustrations with the "green" architecture movement?*

MURCUTT: Most people that are dealing with the so-called environmental issues are often forgetting about space, about light, about all the things that make architecture. If I was a young architect and saw a lot of the work that's coming from the so-called ecological architects, I wouldn't want to be in that field.



The Simpson-Lee House (1994), in Mt. Wilson.

RECORD: *You've had quite a bit of difficulty building some of your projects, with court cases and legal battles. What might this prize mean for your future work?*

MURCUTT: There's a fairly incorrect perception about the ease with which I do these buildings. I've had a very tough time. But, what it means to me now is that I have to fight a little less, and I'm not going to be so negatively obstructed.

RECORD: *In recent years you've collaborated on some projects with your wife, Wendy Lewin, who is also an architect. How do you decide which projects to work on together?*

MURCUTT: It's very simple. If we can't do a project ourselves, then we ask the other, "How about we do this in collaboration?" And when we do work together, every decision is equally made, from design decisions to the ways that we approach things. If there is any disagreement about the way we do it, then we pursue an idea further so that we can find something that we're both happy with.

RECORD: *Tell me about the 75-room 'eco-hotel' in an area prone to wildfires on the Antarctic coast in Victoria, Australia, that you are designing with Wendy Lewin and Reg Lark.*

MURCUTT: That building has to deal with climate change in very severe ways. We're going to deal with fires, four seasons, a lot of rain at certain times and little rain at others, and a lot of wind all of the time. Out of it will come a resolution of all of those forces acting on this building. This building has got to be like that beautiful stone in a river that's getting worn down to its beautiful, inevitable form. I'm looking for that inevitable way of doing things. That inevitability is very important.

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SPECIAL REPORT

Multiple interests and agendas compete for attention in Lower Manhattan



Heavy equipment digs into the last mound of debris at the WTC site in early March.

Cleanup at the Lower Manhattan site of the September 11 disaster is now largely complete, far ahead of the schedule once envisioned. With removal of ruins and human remains winding down, the 16-acre pit now acts as a tragic daily reminder to the thousands of workers and residents who have returned to the surrounding buildings. And it is a reminder that a strategy for rebuilding on the site remains far from complete. This puts Alexander Garvin in the hot seat. Appointed by the Lower Manhattan Development Corporation (LMDC) as vice president for planning, design, and development, it is his job to unite a mind-boggling array of interests and agendas.

The city's looming multibillion-dollar budget deficit is pressuring Garvin to move fast. "New York cannot afford the continuing flight of business nor permit the fear to grow that the city is out of control," explains Raymond Gastil, who has stayed close to the reconstruction process as executive director of New York's Van Alen Institute, which focuses on design of the public realm. "The city needs an expression of confidence in its future."

Move forward at what speed?

But other advocates are urging Garvin to take the time needed "to reconcile reconstruction with the most awful way a building site has ever been created," as Ada Louise Huxtable wrote in *The Wall Street Journal*. Garvin says he is determined not to rush things unduly (see interview, next page) while moving rapidly on vital and low-glamour issues like infrastructure restoration. To replace a giant underground power substation destroyed when 7 World Trade Center collapsed, for example, the building owner, its attorneys, the government agency that owned the land, the telephone company, the power company, and the city planning department all had to agree on a procedure. "Do we own the property?" asked Garvin rhetorically. "No, but we're helpful in quickly bringing together people who are not used to working in a coordinated fashion."

Garvin may be giving in to relentless pressure from the press and politicians to show more rapid progress on more visible rebuilding. Larry Silverstein, whose Silverstein Properties built 7 World Trade Center, wants to break ground on its replacement this summer. Skidmore, Owings & Merrill is completing a design for Silverstein [RECORD, April 2002, page 30] that will thread columns, lobbies, and elevator towers among the transformers. But LMDC agreed to slice off a third of the site so that a vista closed by Silverstein's original tower along Greenwich Street could be reopened, as designers and activists had recommended. SOM has feverishly tailored Silverstein's tower to meet these new constraints, but it has all happened out of the public view—which is the way it needs to be, says Garvin. "We don't have a choice. Decisions have to be nailed down so that the transformers can be put in and detailed design can commence."

Or does it? Manhattan's office market is now slack enough that rushing Silverstein's tower is only a necessity for Silverstein. It won't be easy for SOM to come up with the kind of affirmative civic and reconciling statement the city deserves in a design driven by a perceived need for speed, on a heavily encumbered site, and in the absence of a larger vision for the rest of Ground Zero.

On the rest of the WTC site, Garvin presides over an urban game board in which the pieces comprise interests and possibilities. Might the New York City Opera build a new home downtown? Can long-dreamed-of rail-transportation improvements to the outer boroughs and suburbs be at last implemented? These questions, and numerous others, turned up on a "blueprint" Garvin presented to the LMDC board on April 9.

The blueprint

The dozens of items under consideration in the blueprint include improving open space and pedestrian linkages; encouraging more residential development in what has long been a nine-to-five precinct; bolstering existing cultural facilities while perhaps adding such new ones as a museum dedicated to "freedom, tolerance, and the values that the World Trade Center represented"; building environmentally sustainable new buildings while preserving and adapting the district's numerous historic structures.

Most of the blueprint items had previously been proposed by the numerous ad hoc coalitions that sprang up after the disaster, especially New York, New Visions, a pro bono coalition of 22 organizations representing architects (including AIA New York), engineers, planners, and other designers, that issued its recommended principles [February 2002, page 26] this winter. AIA New York executive director Rick Bell, FAIA, says his chapter is informally

dvising Garvin and his staff. Regarding the New York, New Visions recommendations, Bell says, "We believe that it's had some palpable political impact."

The LMDC has had some difficulty, though, moving forward with its agenda. In late March, it issued a Request for Proposals (RFP) to 24 architecture and planning firms for an "urban plan for the World Trade Center site." The LMDC withdrew the request when the Port Authority of New York and New Jersey, which owns the site, determined that the LMDC did not have a right to build at the site. The Port Authority, "in cooperation with the LMDC," issued its own RFP for an "urban planning study" in late April. Proposals were due May 6.

The LMDC has also relied on several advisory councils that *The New York Observer* succinctly described as "sprawling yet opaque." While LMDC will continue to solicit ideas from the committees and from the public, it will pare down alternatives through in-house deliberations. In April, Mayor Bloomberg appointed four new members to the LMDC board of directors [January 2002, page 28], including, most notably, architect Billie Tsien, a principal with Tod Williams Billie Tsien and Associates. The other three appointees were E. Stanley O'Neal, president and chief operating officer of Merrill Lynch; Sally Hernandez-Piñero, an attorney and former deputy mayor for economic development; and Carl Weisbrod, president of the Alliance for Downtown New York, which manages the Lower Manhattan Business Improvement District.

Some of the stakeholders fear the fix is already in. "Decisions have been made without the participation of the victims' families," says Monica Iken, founder of September's Mission, one of nine major groups that have formed to press the interests of widows and families of those killed in the disaster. Her organization is particularly concerned with the nature of a memorial and regards the Trade Center site as hallowed ground. When asked whether any of it could be built upon, Iken said in an interview, "It's not about quantity. But the memorial has to be planned before anything else is discussed." Nikki Stern, a long-time marketing consultant to architects, sees the inspiring potential of new development that is innovative and ecologically sustainable. But she, too, lost her husband in the tragedy and understands the reluctance to permit any building on the site. "I'm well aware of the need to own what happened. It provides a point of control. I have never experienced something so beyond my control."

A proposal to have a tomb of unknown victims, similar to the Tomb of the Unknown Soldier, as a portion of a larger memorial was reported to be gaining momentum in meetings between victims' families, the LMDC, and the city.

Future as business center?

Another question hanging heavily over Lower Manhattan is what kind of future it can forge as a business center. The New York Stock Exchange's role as the linchpin of downtown's financial district has become merely symbolic, say a growing chorus of experts, as more trading functions migrate to electronic realms.

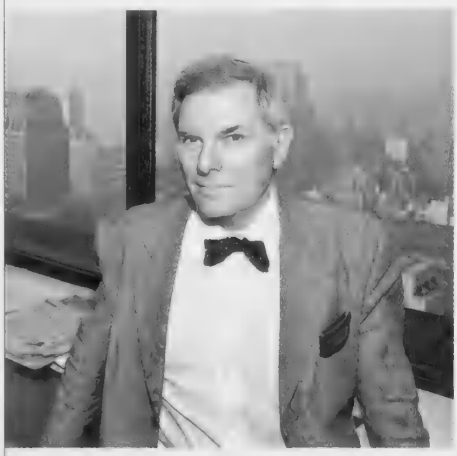
Lower Manhattan had lost its luster long before the September disaster, and its slide won't easily be reversed. The World Trade Center itself was one of decades' worth of largely unsuccessful revitalization strategies. City officials have hailed the return of several financial firms to cleaned-up space in Lower Manhattan, but the city's future is clouded if the zeitgeist of real estate "dispersal" retains its hold. Architectural innovation is not in the Lower Manhattan mix yet, however. The current strategy is an old one: throw money at businesses in the form of tax breaks and incentives as an inducement to stay. But architecture may get a stronger voice with the appointment of Tsien to LMDC's board, which is otherwise heavily weighted to real estate interests.

James S. Russell, AIA, with John E. Czarnecki, Assoc. AIA

Alexander Garvin, the top planner for WTC redevelopment, talks about process, vision

Alexander Garvin (below), the vice president for planning, design, and development for the Lower Manhattan Development Corporation (LMDC), spoke with RECORD editor at large James Russell, AIA. Garvin, an architect, planner, and real estate developer, is an adjunct professor of urban planning and management at Yale University. He has also served on the New York City Planning Commission.

ARCHITECTURAL RECORD: *What kind of planning process are you undertaking?*



GARVIN: We have had a listening process in which we explored and identified ideas, and we presented LMDC's board with a set of principles and an initial blueprint of action. And now we're asking, "What do you think?" We will analyze the responses and see if other ideas come out. In each case, we will present alternatives with a public review process, and out of this we will eventually have a plan. Another agenda is devising a process to arrive at a memorial.

RECORD: *Do you anticipate sponsoring competitions or using other means to obtain the highest level of design?*

GARVIN: Regarding competitions, we see some process for the memorial, but we haven't decided yet. We'll be working with consultants for urban design work [not selected at press time].

RECORD: *There's been much discussion regarding whether the financial businesses need to be so concentrated around Wall Street. Does downtown have a future as a financial capital?*

GARVIN: It is the financial capital of world and will remain so.

RECORD: *Do you have a vision for keeping it so?*

GARVIN: I've been here [with LMDC] for only a short time, so it's a little early for that. We're going through a public process precisely to determine what arrives in Lower Manhattan. We already know that we need to have a set of magnets to bring people in. We need to make the area more accessible to the region. People now want to see the site. We'll bring in more cultural facilities, but there are a number of museums already here, so we may not need to add much more. Some of those museums may need to expand. People have also been moving into Lower Manhattan for some time, and we'll try to encourage that. We'll plan for the kind of life that had not been prevalent here in the past 60 or 100 years.

RECORD: *What overall goals have you set in your planning?*

GARVIN: We're looking at what to do with West Street, a 260-foot-wide right-of-way that is, in effect, a barrier separating Battery Park City from Lower Manhattan. We need to reconnect the site with the neighborhoods of Lower Manhattan—it cannot remain an island by itself, as the World Trade Center was.

www For continuous updates on developments in Lower Manhattan, visit our special section at: architecturalrecord.com



Feds turn over Governors Island to New York for a CUNY campus

Governors Island (above, as seen prior to September 11, 2001), the 172-acre island that once was an integral guard post for New York Harbor, will soon become a campus for City University of New York (CUNY). President Bush announced in April that the Federal Government would turn over control of the island to New York State for a nominal cost. Terms of the deal were not announced at press time.

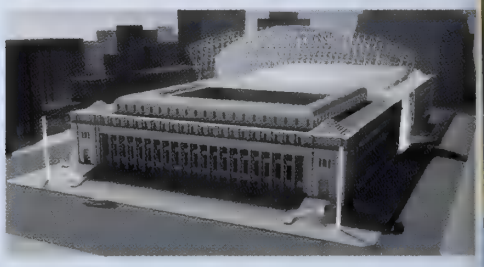
CUNY, with an enrollment of nearly 200,000 students, will likely have classes at facilities on the island as early as this summer, according to Michael Arena, the university's director of media relations. Initial plans call for the island to be a teacher-training center, and CUNY will be able to reconsider facility needs at its 17 campuses in the city.

Arena says the university does not have plans for major construction on the island. Rather, the university would make use of the existing buildings and may plan for renovations. Historic structures on the island include Castle Williams and Fort Jay, two 19th-century forts that are part of the Governors Island National Monument created by President Clinton. The General Services Administration had maintained the island property and buildings "extremely well," according to Arena. The land has been dormant since the late 1990s, when it was a Coast Guard base.

Originally much smaller, the island grew with landfill from subway construction that was dumped there beginning in 1901. President Clinton offered to return the island to New York for $1, but Governor Pataki and Mayor Giuliani could not agree on a reuse plan. *J.E.C.*

Stalled plans for new Penn Station at a critical juncture

This spring is a crucial time if the new Pennsylvania Station in New York is going to be built as planned. In the works for a decade, with a design by Skidmore, Owings & Merrill awaiting implementation, the plan to convert Manhattan's main post office into a showcase train station for the 21st century has been stalled, but the U.S. Postal Service (USPS) was expected to approve it soon after press time.



The new Pennsylvania Station is planned to be inserted within the James A. Farley General Post Office, one block west of the current Penn Station. *The New York Observer* reported in early April that the Pennsylvania Station Redevelopment Corporation (PSRC) was within weeks of closing a $788 million deal with the USPS, the last entity to sign onto the plan. After the sale, the postal service will move much of its operations out of the building. In a move seen as a boost to closing the deal, Mayor Michael Bloomberg appointed former U.S. Senator Daniel Patrick Moynihan, a vocal advocate for the new station, to the PSRC board in April.

A plethora of issues, both political and financial, have stalled or nearly killed the idea in recent years. According to the *Observer*, Rudy Umscheid, the USPS vice president for facilities, wrote to the PSRC on September 21, 2001, indicating that the potential project was dead. In a meeting with President Bush at the White House on October 11, one month after the 9/11 attack, Governor Pataki and Charles Gargano, chief of the Empire State Redevelopment Corporation, emphasized the importance of a new train station, and asked the White House to pressure the USPS. Negotiations then resumed. *J.E.C.*



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Another one bites the dust: Neutra's Maslon House gone

The suburban teardown has claimed another victim: Richard Neutra's Samuel and Louella Maslon House. Completed in 1962 in Rancho Mirage, California, it was one of three Neutra-designed homes in the Palm Springs area. Located in the gated community of the Tamarisk Country Club, the house was demolished in March, only one month after it was purchased for $2.45 million.

An essay in site specificity, the house's substantial size was diminished in appearance by its U shape as well as its horizontality, so that it seemed to hover just above the golf course fairway onto which it backed. Designed as a gallerylike space for the Maslons' extensive art collection, the house was occupied by Luella Maslon until her in death in July 2001. Buyers Mr. and Mrs. Richard J. Rotenberg of Hopkins, Minnesota, were not available for comment.

Barbara Lamprecht, author of *Richard Neutra: Complete Works*, says that with the demolition, "we have one less opportunity to be exposed to an acute intelligence about how we might live our lives with ergonomic efficiency along with grace. (The loss) is an exception to a growing understanding of preserving Modernism."





Neutra's Maslon House (in a photograph by Julius Shulman, above) was destroyed (top) in March.

Real estate broker Deirdre Coit, who represented the Maslon estate on behalf of Sotheby's International Realty, says she "had no idea" of the teardown plan. She conjectures that while "there are a lot of country clubs, there are only a handful that people want to be in. They wanted the land."

The extant Neutras in the area are the Grace Miller House and Kaufmann House. *David Sokol*

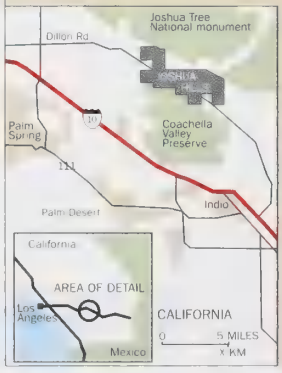
Developer sees $$$ in untouched desert land



Eleven miles north of Palm Springs and Rancho Mirage, California, the desert plains that lie between the Little San Bernardino Mountains, home of Joshua Tree National Park, and the foothills of the Coachella Valley Preserve are reminiscent of California before sprawl. A plan to develop 9,000 acres of this land (above) may change that.

Richard R. Oliphant, C.E.O. of California Intelligent Communities, is in the preliminary stages of planning to develop a new community called Joshua Hills on the site, which will include the World Trade Center University, a 3-million-square-foot technology center, 7,000 units of housing, three hotels, and two country clubs. Ground-breaking is scheduled for 2004.

The proposal has raised the ire of conservationists. According to Ernest Quintana, the superintendent of Joshua Tree National Park, "right now the critical issue is breaking connectivity between the park and the preserve." Joshua Hills will block the flow of rainwater that nourishes the dune ecosystem of the foothills, he explains, and "the movement of wildlife between the park and the preserve will be severed."



Katie Barrows, associate director of the Coachella Valley Mountains Conservancy, a state agency that is preparing a habitat-conservation plan for the region, says local groups are trying to purchase the site and block the development's approval.

In response to criticism, Oliphant says, "we're letting science design the project, rather than the bottom line." EDAW, the primary environmental consultant, has maintained a natural passageway between the park and preserve for the development. Drought-resistant landscaping, a cooperative power system, and a waste-treatment facility are also planned. *D.S.*



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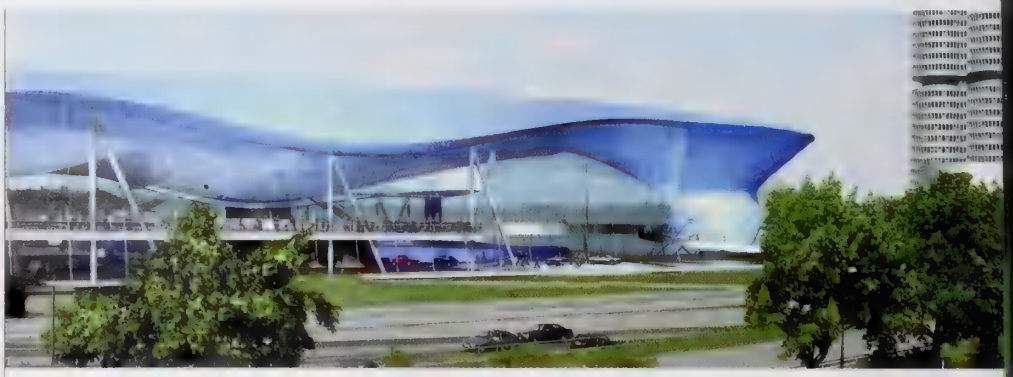
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Two showcases by Coop Himmelb(l)au for art and BMWs

For two recent projects, Vienna-based architecture firm Coop Himmelb(l)au developed two distinctive solutions. The firm recently won competitions for a BMW Event and Delivery Center in Munich (above) and the Akron Museum of Art (below), the firm's first American commission.

"The first generation of buildings that reflect how museums have changed from bank vaults and palaces into urban cultural centers is being designed now," says Akron Art Museum director Mitchell Kahan, citing a number of museums under construction, including Diller + Scofidio's upcoming Institute of Contemporary Art in Boston. And, of course, he's including Akron.

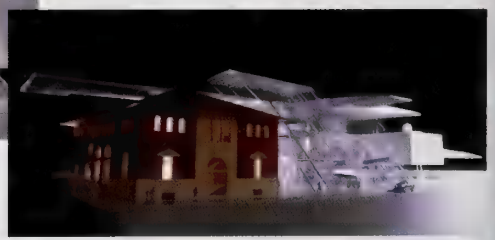
At the end of a yearlong international competition, the Akron Art Museum chose Coop Himmelb(l)au to design its new $23 million, 50,000-square-foot building. The structure will triple the museum's exhibition space and provide the amenities needed to help it become, as Kahan says, "the public center for the city."

The museum, whose collection includes works from 1850 to the present, currently occupies an 1899 Italian Renaissance–style post office in the heart of the city, and Coop Himmelb(l)au principals, Wolf D. Prix and Helmut Swiczinsky, known for their expressionistic forms, have proposed a three-part solution to the museum's expansion needs. A three-story glass "crystal" will house a grand lobby that will act, says Kahan, "like a Roman forum or Greek agora," and provide a central core from which to view the museum's art-display, educational, and administrative functions.

Artificially lit gallery spaces with movable walls will be contained in a 25,000-square-foot box that rises above ground level behind the crystal. A steel element, which the architects call a "roof cloud," will link the existing Akron post-office building—which will cease to be an exhibition space, housing educational and administrative operations instead—and the new museum, offering shelter for outdoor concerts and other public events. From various places downtown, the steel deck will also appear to peek above the low-rise rooflines, becoming a kind of "horizontal landmark," as the architects call it. The plan also includes an enclosed courtyard and urban sculpture park. Construction in Akron is slated to begin in 2003 and is expected to take about two years.

Coop Himmelb(l)au won the competition for the BMW Center over Morphosis, Zaha Hadid, and Sauerbruch Hutton. The 500,000-square-foot, $100 million public showcase for BMW will have a 600-seat auditorium. To be completed in 2004, the building is adjacent to the BMW Group Head Office and the Munich BMW plant. *Jessica Dheere with J.E.C.*





The warping roof of the BMW Event Center (top) and the glass-and-steel addition to the Akron Art Museum (above and right) by Coop Himmelb(l)au.

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Record News

Diller + Scofidio win competition for new Eyebeam home





Folding forms contrast with the warehouse context.

The contemporary art scene in New York may soon have a building as changeable as technology itself. Eyebeam, a nonprofit arts organization, announced that New York architects Elizabeth Diller and Ricardo Scofidio have won the competition to design its new hi-tech research, education, and exhibition center.

Eyebeam, which focuses on new-media art and cutting-edge technology, challenged the 30 firms originally invited to participate in its competition to design a spatial experience that would reflect the transient nature of new technology, with ever-evolving forms that can vary from pixel light to ambient sound. The hybrid organization also wanted to upend traditional museum paradigms by creating space where artists, researchers, and visitors could mingle, and where glimpsing work in progress might be part of the experience itself.

The 90,000-square-foot, $60 million structure will be located in Chelsea on the west side of Manhattan and will replace one-story converted garages that have housed Eyebeam since its inception in 1997. The other finalists in the competition were MVRDV of Rotterdam and Leeser Architecture of New York.

In Diller + Scofidio's proposal, a two-ply structure of folded planes, one of poured concrete, the other of a super thin "blue" material now in development, ascend in crumpled, asymmetrical zigzags. The building's wiring technologies, which can easily be modified to fit changing needs, sit between the two layers, while walls and ceilings of interior rooms are made from the uneven surfaces that layering produces. Inside, sheer glass partitions suffused with liquid crystal can be made dark or transparent to allow selective visual access between spaces. Instead of hiding traditionally private functions like production, the semitransparent membranes, which can be rearranged for installation purposes, allow a high level of interaction between departments.

Although its form may be modified as design development proceeds, Eyebeam hopes to open the building by 2006. *Tess Taylor*

Summit planned to give voice to intern issues

An internship summit, planned to build on the discussion initiated at the 1999 Collateral Internship Summit and the work of the Collateral Internship Task Force, will be held at the University of Oklahoma College of Architecture, October 4 to 6, 2002. Organized by Archvoices.org, an information Web site for interns edited by Casius Pealer III and John Cary, Jr., the 2002 summit is cochaired by Cary and Laura Lee, an associate professor at Carnegie Mellon University. The organizers intend the summit discourse to evaluate the continuum between education and practice, including the IDP program and paths to licensure, and review what has and has not been accomplished since the 1999 summit.

The organizers will select 30 people to participate in the summit, and anyone can apply to be invited to take part. Participants will likely include students, interns, architects, educators, and representatives of other professions. All on-site costs, including accommodations, will be paid by the University of Oklahoma. If interested, e-mail Cary at jcary@archvoices.org. *J.E.C.*

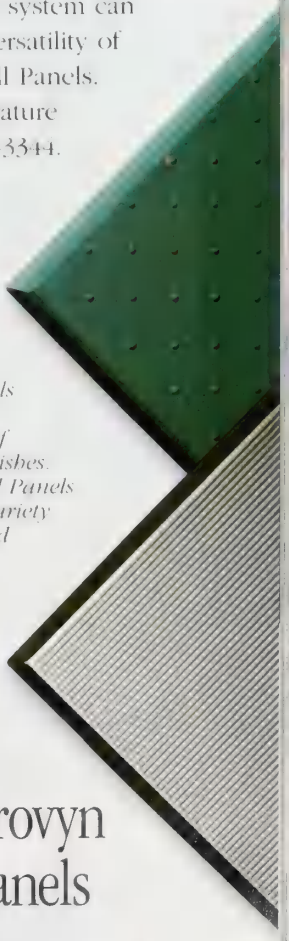


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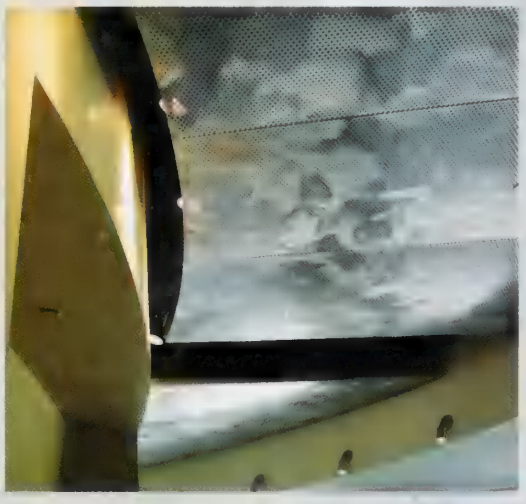
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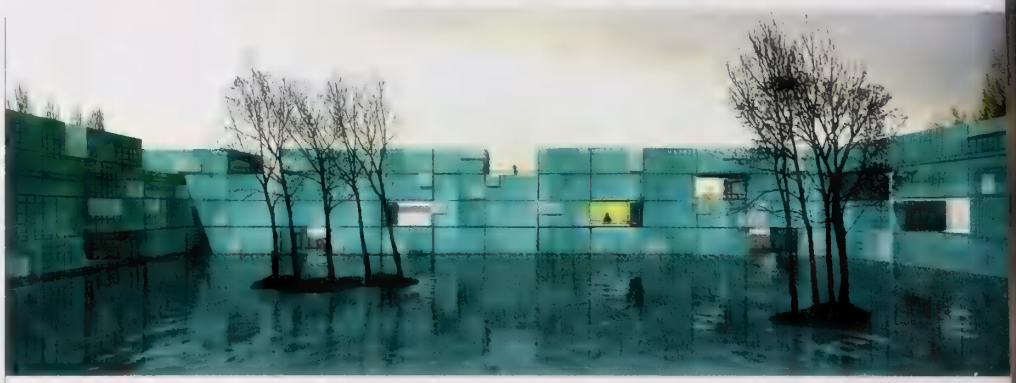
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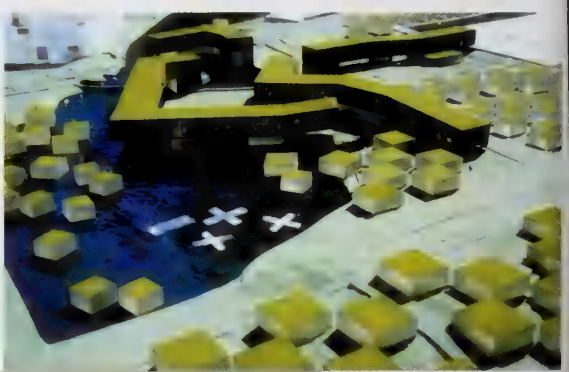
Major housing development by Holl in the Netherlands

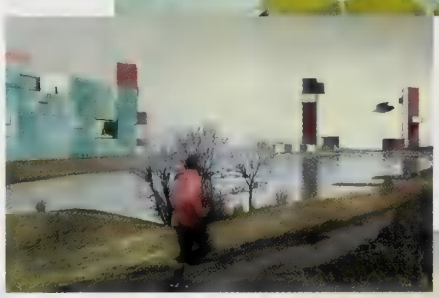
Steven Holl Architects has won a competition for a significant international housing commission. A design led by associate Martin Cox has won the Schipol Housing Project Competition for 1,250 units of environmentally and socially aware housing on a polder in Haarlemmer-Meer, a municipality near Amsterdam's Schipol airport in the Netherlands. The Holl design was selected over three other firms: Eric van Egeraat Associated Architects, Soeters Van Eldonk Ponec, and MVRDV, in a single phase competition. Construction is scheduled to begin this year, with completion of phase I in 2003.

The project is part of much wider efforts underway to build housing in the Netherlands. The Vinex report, a government-sponsored document, recently recommended that 1.1 million units of housing be created in the Netherlands to respond to increasing housing shortages and projected population growth. The effort will be the largest in the Netherlands since reconstruction after World War II.

The Schipol competition was designed to challenge some of the basic precepts that have informed the creation of Dutch housing in the past. Rather than assuming a nuclear family, the competition asked architects to design model housing that would support diverse living arrangements. In addition, it specified the inclusion of sustainable practices in building efforts.

In order to reduce the energy required to pump the polder, Cox's proposal allows 20 percent of the land to return to water. Six housing types will be constructed. In extended branches, "house factories," which are live-work spaces, will lessen the need to commute. Co-housing provides space for family units to share responsibilities of domestic life. Senior units provide integrated spaces for the elderly, while towers of "cactus housing" provide temporary housing for jet setters in need of a base near the Schipol airport, the main gateway to the Netherlands. A checkerboard pattern of single-family homes around common courts emphasizes shared space. In addition, a few floating villas, designed with the introspective or solitary in mind, will hover on the surface of newly recovered water. *T.T.*







Holl's scheme with a view of the polder void (top); aerial of "floating villas" (above); and "cactus towers" (left and below).

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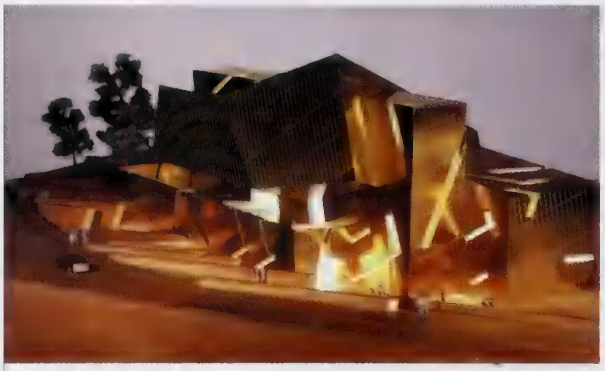
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Building begins on the Wohl Center, Libeskind's first project in Israel

Letters of the Hebrew alphabet are integral to the concept and design in Daniel Libeskind's first project in Israel, the Wohl Center at Bar-Ilan University near Tel Aviv.

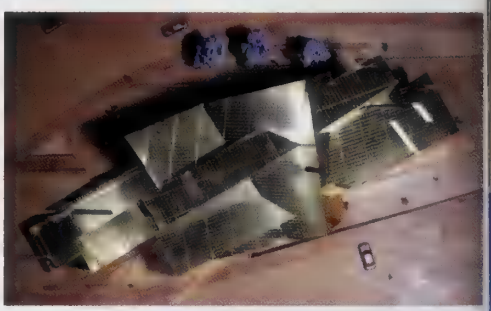
Construction has begun and will be completed by mid-2004 on the 33,000-square-foot building, which will be located on a semicircular, 43,000-square-foot traffic island.

Clad in aluminum panels coated with a gold-colored metallic lacquer, the Wohl Center will house an auditorium, lecture halls, and seminar rooms. The base consists of three long, rectangular "bars." The middle bar, "the spine," contains stairways and elevators and has the only exterior walls that stand at right angles. Some of the diagonal slit windows and skylights, similar to those in Libeskind's Jewish Museum in Berlin, are shaped like Hebrew letters. Libeskind said they express the two essential components of this religiously oriented university: knowledge and faith.

Set into the bars and seemingly "floating" above them on a cantilever is the auditorium, or what Libeskind calls "the book," which will seat more than 1,000 people. By raising the auditorium aboveground, Libeskind minimizes the footprint of the $7.2 million building, allowing room for a garden and café. "I had to be creative in how the load was brought down. It is also functional, though, because I wanted to keep the auditorium away from the road acoustically," said Libeskind, who lived in Israel as a child.

The building is situated between the Bar-Ilan University campus and residential high-rises. Thus Wohl Center, which will be the venue of cultural events open to the public, will be a "bridge between the community at large and the university," Libeskind said.

Arup, the London-based engineering firm, ensured the concrete walls would withstand the stresses of their odd angles. Libeskind's local associates are The Heder Partnership, Tel Aviv.
Esther Hecht



Libeskind's Wohl Center is clad in aluminum panels covered in a gold-colored metallic lacquer.

Educators debate degree nomenclature at ACSA meeting

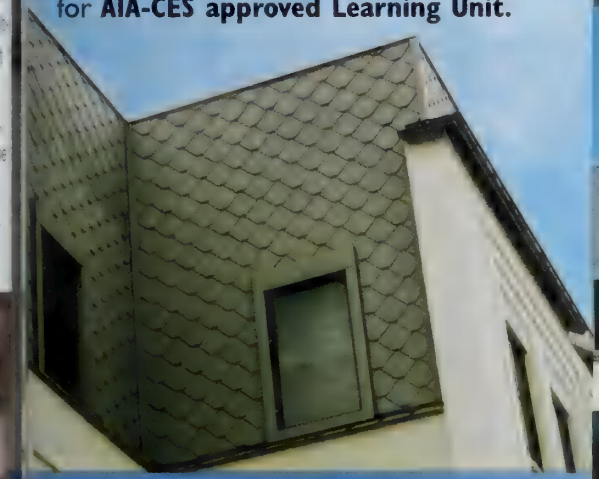
Architectural educators discussed a number of issues—from distance education to budgets impacting schools of architecture to educating students in the post-9/11 world—at the annual meeting of the Association of Collegiate Schools of Architecture (ACSA) in New Orleans, April 11 to 14. One of the most hotly debated issues, though, continued to be degree nomenclature.

The degree nomenclature debate [RECORD, December 2000, page 34] has been in the forefront since the mid-1990s, when the National Architectural Accrediting Board (NAAB) eliminated time requirements for a professional degree. At the annual meeting, ACSA members debated the issue based on three questions: 1) Should NAAB reinstate a time duration requirement of 6 years for the M.Arch degree?; 2) Should a new degree title, such as D.Arch, be offered as a first professional degree?; and 3) Should the terminal degree be a post-professional (or second professional) degree? The ACSA will develop a position paper to present at the fall 2003 NAAB validation conference. No matter which side educators took, most agreed that they wanted ACSA to come to some resolution on the matter so that the issue does not overwhelm discussions in the next year. Bradford C. Grant, AIA, of Hampton University, will take office in July as the 2002–2003 ACSA president—the first African-American in that position. *J.E.C.*

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William Massie's Urban Beach to grace P.S.1 courtyard

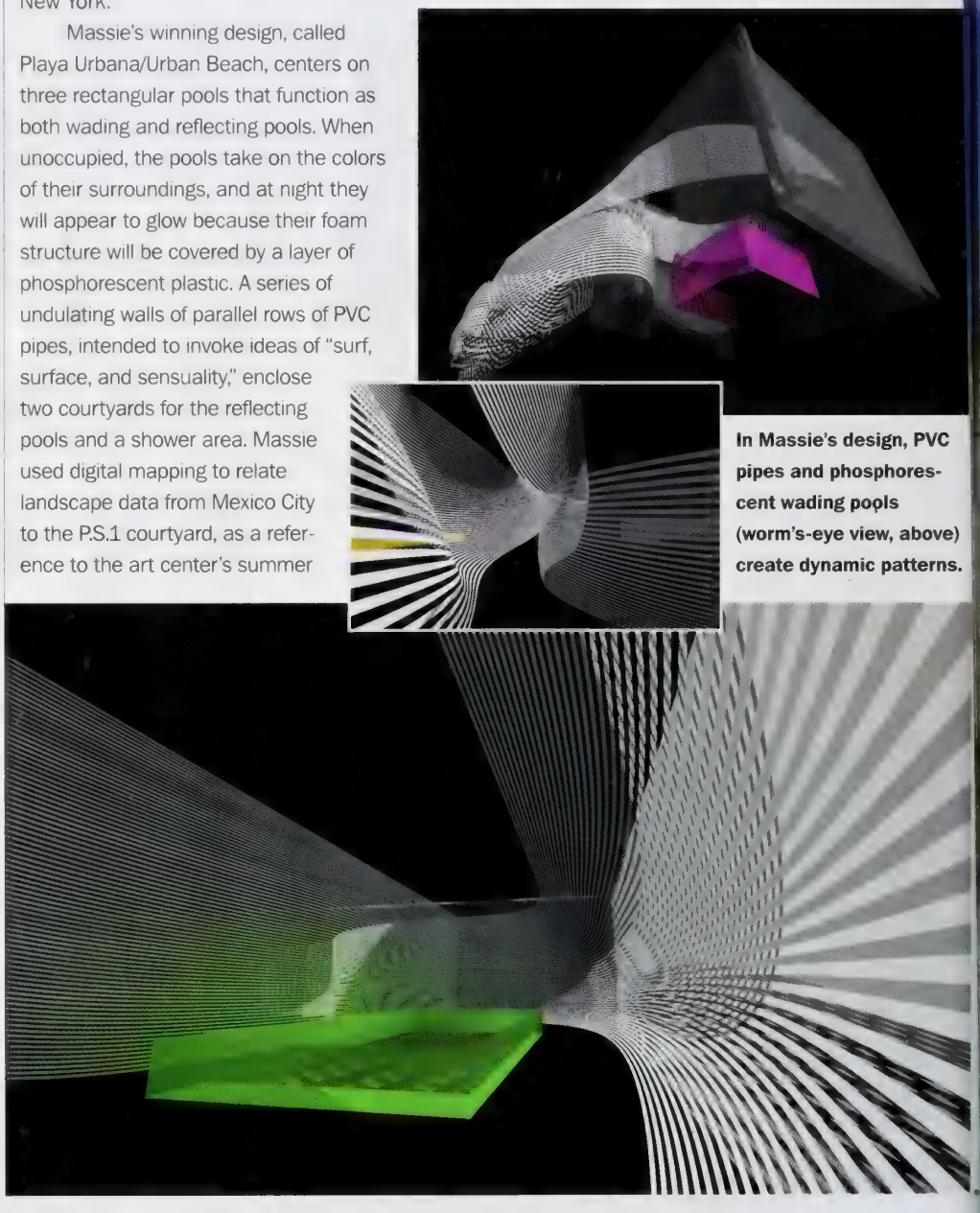
William E. Massie of New York City has been named the winner of the third annual MoMA/P.S.1 Young Architects Program, cosponsored by the P.S.1 Contemporary Art Center in Queens, New York, and the Museum of Modern Art (MoMA). The program invites young architects to design a temporary installation for the center's courtyard. Massie's design will be constructed and featured at P.S.1 from June 30 to August 30.

The 25 invited competitors were asked to design a structure for the P.S.1 courtyard with a project budget of $50,000. The five finalists included Office dA, of Boston; and Specht Harpman, ARO, KDLAB, and Massie, all from New York.

Massie's winning design, called Playa Urbana/Urban Beach, centers on three rectangular pools that function as both wading and reflecting pools. When unoccupied, the pools take on the colors of their surroundings, and at night they will appear to glow because their foam structure will be covered by a layer of phosphorescent plastic. A series of undulating walls of parallel rows of PVC pipes, intended to invoke ideas of "surf, surface, and sensuality," enclose two courtyards for the reflecting pools and a shower area. Massie used digital mapping to relate landscape data from Mexico City to the P.S.1 courtyard, as a reference to the art center's summer exhibition of art and artifacts from Mexico.

Massie is a graduate of the Parsons School of Design and Columbia University's Graduate School of Architecture. He has taught at Montana State University, was Coordinator of Building Technologies Research at Columbia, and now teaches at Parsons. He has worked for Polshek Partnership Architects and now runs a private practice in New York City.

Lindy Roy [RECORD, May 2001, page 50; August 2001, page 51] won the competition last year, and SHoP/Sharples Holden Pasquarelli [August 2000, page 80] won in 2000.
Kevin Lerner



In Massie's design, PVC pipes and phosphorescent wading pools (worm's-eye view, above) create dynamic patterns.

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News Briefs

Colorado Convention Center expansion begins Ground was broken April 29 for an expansion of the Colorado Convention Center in Denver by local firm Fentress Bradburn Architects, which designed the original building completed in 1990. The expansion, which will more than double the convention center's size to 2.5 million square feet, with a 5,000-seat lecture hall, two new ballrooms, and a 1,100-space parking garage, is expected to open in December 2004.



The Colorado Convention Center addition will have an expansive glass facade.

Nine listed for Avery Fisher Hall job New York's Lincoln Center is inviting nine architects to submit proposals for a redesign of Avery Fisher Hall, home of the New York Philharmonic. The architects' are Christian de Portzamparc, Sir Norman Foster, Arata Isozaki, Toyo Ito, Rem Koolhaas, Richard Meier, Rafael Moneo, Jean Nouvel, and Skidmore, Owings & Merrill. Lincoln Center is expected to narrow the list down to three architects by summer and make a final selection by October. The renovation and redesign of Avery Fisher Hall is one part of a $1.2 billion redevelopment plan for the entire Lincoln Center.

New York transmission tower proposed A new transmission tower, designed by Kohn Pedersen Fox (KPF) and Desimone Consulting Engineers, has been proposed to replace the broadcasting antenna that once stood atop New York's World Trade Center. That antenna broadcast 18 television and four radio stations. The new, 1,840-foot antenna, with an observation deck at 1,250 feet, would be the tallest observation structure in the world. An exact location has yet to be determined—a number of sites in and near New York Harbor are under consideration.



The 1,840-foot tower by KPF.

The tower design features concentric spiraling steel cables, which taper inward and give the illusion of an hourglass. The core houses four egress stairs and two elevators, and the 40-foot-diameter concrete structure, sheathed in metal panels, supports three floors with an observation platform, retail, restaurants, and broadcasting equipment.

DuPont wins National Building Museum award The National Building Museum presented its 2002 Honor Award to DuPont, manufacturer of building products. The award coincides with the 200th anniversary of DuPont, known for its inventions and scientific achievements. "The National Building Museum is privileged to salute DuPont for its inventive products that directly influence the construction and design process in the building industry," says Susan Henshaw Jones, president of the museum, which has given the award since 1986.

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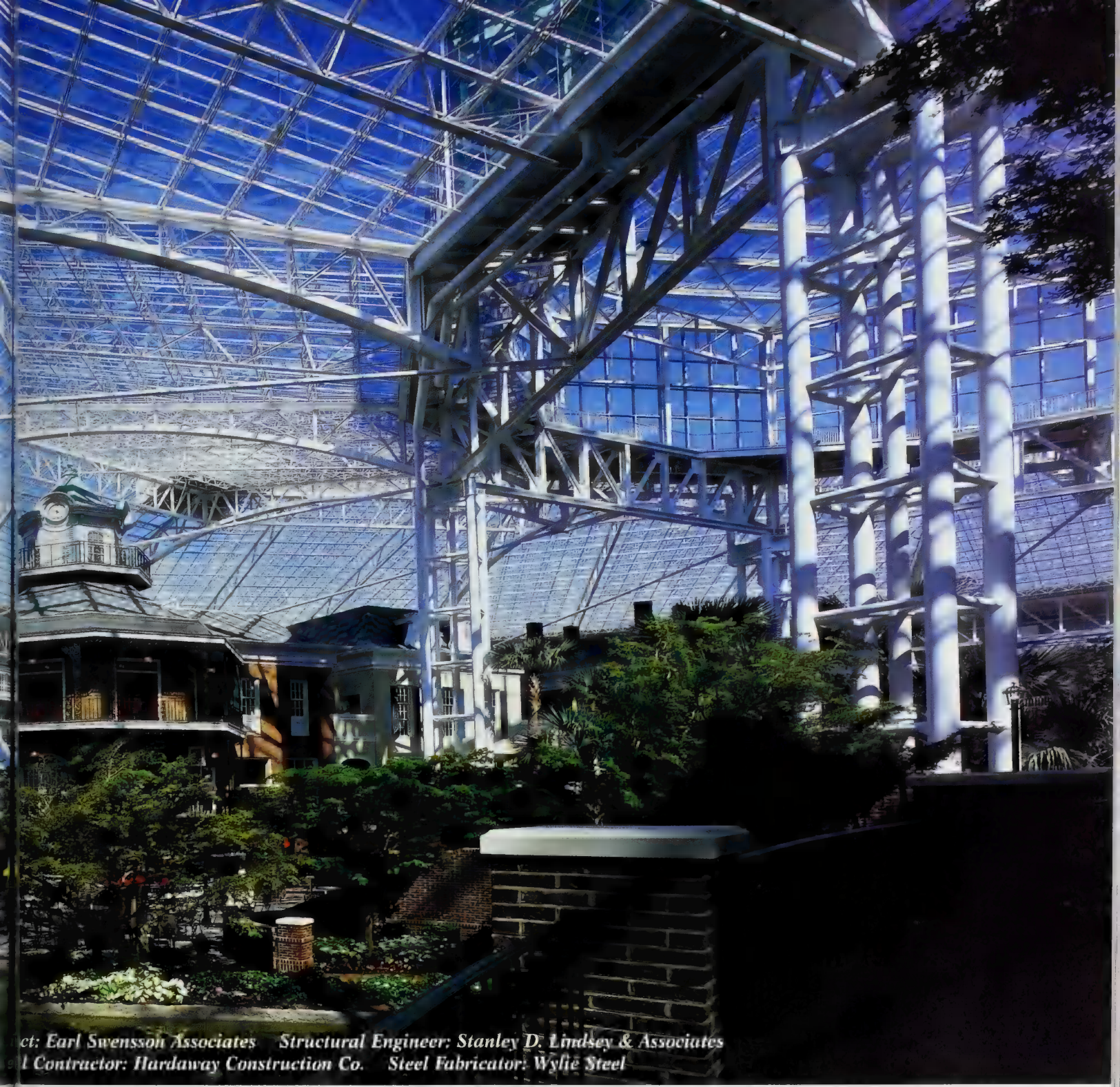
Vulcraft steel joists span a 4-acre skylight, the second largest in the nation.

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Dates & Events

New & Upcoming Exhibitions

Houses X Artists=Design Without Rules
West Hollywood, Calif.
May 10–June 25, 2002
Commencing this six-month exhibition is the first phase of *Houses by Artists*. The Mak Center, in collaboration with New York–based firm OpenOffice, has invited 10 contemporary artists to stretch their imaginations and each design a house free of the typical contraints imposed on architects by professional practice. Their proposals will be presented in model and digital form as they evolve in three phases over the next six months. At the Mak Center. Contact 323/651-1510.

Museums for the New Millennium: Concepts, Projects, Buildings
Milwaukee
May 24–August 4, 2002
This exhibition presents a cross section of the most significant museum projects designed and built within the past 10 years. Through drawings, photographs, and original models, the show features 25 museums from around the world, including the Milwaukee Art Museum expansion by Santiago Calatrava. At the Milwaukee Art Museum. Call 414/224-3200 for more information.

Ongoing Exhibitions

Mood River
Columbus, Ohio
Through May 26, 2002
Explore the forms, materials, and textures of contemporary design through a close look at the objects and icons that define our everyday reality. This exhibition features more than a thousand products and designs from the worlds of fashion, sports, and technology, representing such designers as Philippe Starck, Frank Gehry, and Issey Miyake. The show is accompanied by a series of lectures, discussions, and walking tours. At the Wexner Center. Contact 614/292-3535.

Mies in America
Chicago
Through May 26, 2002
An exhibition of work from the career of the late German architect Ludwig Mies van der Rohe, after he arrived in America in 1938. The Seagram Building in New York and the Farnsworth House in Illinois are among the show's highlights. At the Chicago Museum of Contemporary Art. Call 312/280-2660.

US Design, 1975–2000
Denver
Through May 26, 2002
Through a choice selection of drawings and designs, this exhibition celebrates the work of American designers in the last quarter of the 20th century. Included in the show—extending to architecture, industrial design, and beyond—are such designers as Robert Venturi, Maya Lin, and Steven Holl. At the Denver Art Museum. Call 720/865-5000 for more information.



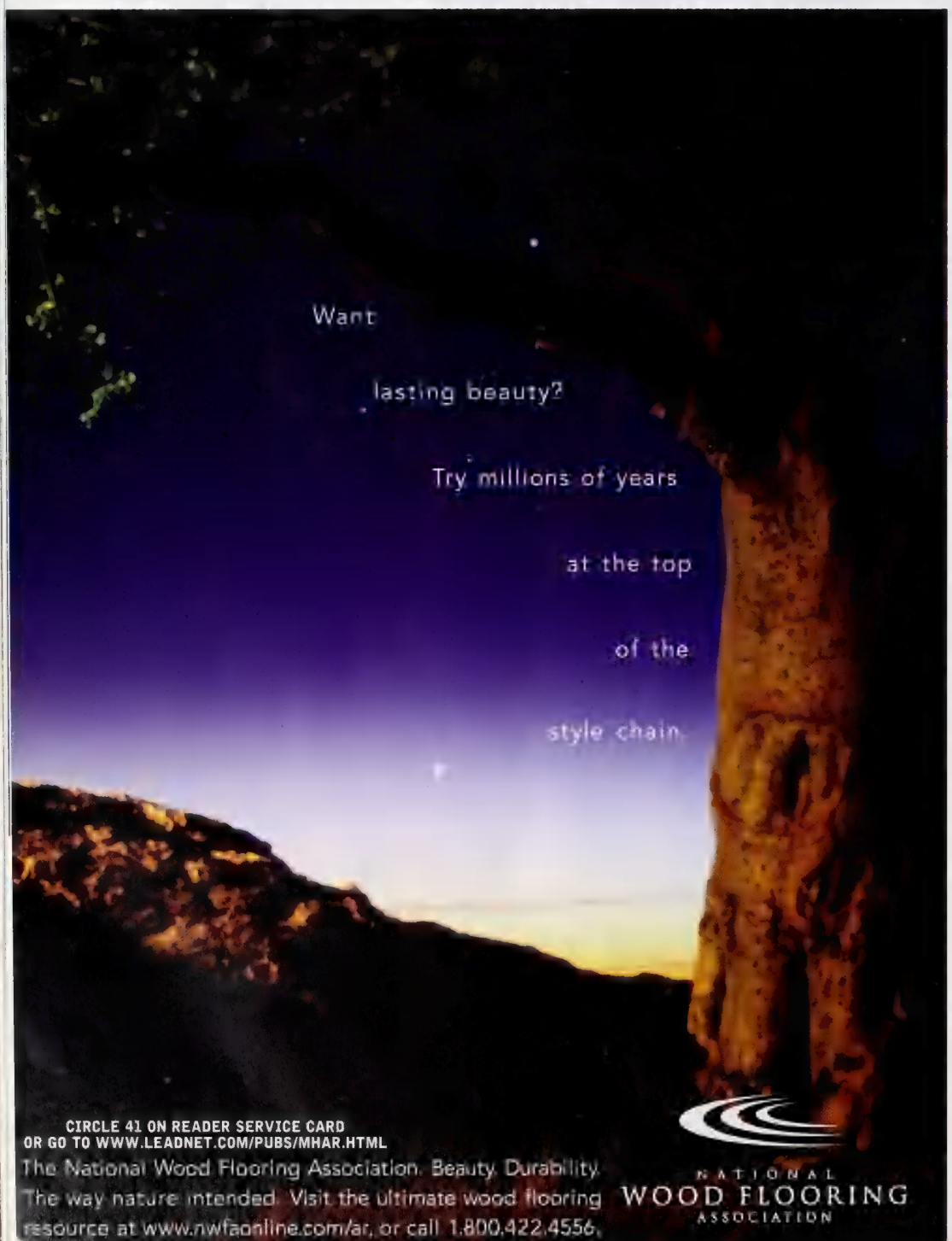
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Dates & Events

A New World Trade Center: Design Proposals
Washington, D.C.
Through June 10, 2002
An exhibition featuring sketches, renderings, and multimedia projects created by established and emerging architects in response to the need to rebuild on the site of the World Trade Center and embrace the future of New York. Organized by the Max Protetch Gallery. At the National Building Museum. Call 202/272-2448 for more information.

Utopia & Reality: Modernity in Sweden 1900–1960
New York City
Through June 16, 2002
This timely exhibition surveys Swedish art and culture from the first half of the century, when youth, progress, and innovation became vehicles for understanding Modernism and the rapidly changing world of the time. A full range of artistic expressions will be covered, from architectural drawings and models to painting, sculpture, graphic design, and photography. At the Bard Graduate Center. Call 212/501-3000 for further information.

The Alliance of Art and Industry: Toledo Designs for a Modern America
Toledo
Through June 16, 2002
In the 1930s, Toledo, Ohio, was a hotbed for cutting-edge industrial design. Now, almost a century later, it is celebrating its past with this exhibition at the Toledo Museum of Art. Among the 180 products included are cars, scooters, appliances, furniture, gadgets, and even a life-size model of the wildly modern "Kitchen of Tomorrow," presented in 1942. For more information, call 800/644-6862.



Designing the Future: the Queens Museum of Art
New York City
Through July 7, 2002
An exhibition featuring drawings and models from the Queens Museum of Art Design Competition. On view are the works of 198 competitors and five Stage II finalists. The exhibition also traces the history of the museum's building, which is the only surviving structure from the 1939 and 1964 world's fairs in Flushing, Queens. At the Queens Museum of Art. Visit www.queensmuse.org.

The Geometry of Seeing: Perspective and the Dawn of Virtual Space
Los Angeles
Through July 7, 2002
Through illustrated treatises, drawings, and prints, this exhibition traces the complex yet fascinating history of perspective drawing over a period of four centuries. On display is an extraordinary range of theories and rendering techniques, including the work of Leon Battista Alberti, Albrecht Dürer, and Sebastiano Serlio. At the Getty Center. Contact 310/440-7360.

Gaudí Experiences: Space, Geometry, Structure, and Construction
Barcelona, Spain
Through September 27, 2002
Throughout his career, Gaudí's feats of structural ingenuity and seemingly impossible design never ceased to amaze the public. In a tribute to his work, this exhibition unravels the mystery behind Gaudí's construction by exploring the extraordinary methods of calculation used by the architect. At the Museu d'Historia de la Ciutat. Visit www.gaudi2002.bcn.es for more information.

Alsop at the Soane
London
Through October 8, 2002



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Dates & Events

Celebrating the process behind the practice, this exhibition is the third in a series linking the work of celebrated contemporary world architects with the tenets and themes that are reflected in the unique collection of architectural ephemera, sculpture, and painting in the Sir John Soane's Museum. The show includes models, film projections, and a selection from concept sketchbooks. At the Sir John Soane's Museum. For more information about the exhibition, contact William Palin at will.palin.soane3@ukgateway.net.

Tours

28th Annual Frank Lloyd Wright House Tour
Chicago
May 18, 2002
Eight private residences designed by architect Frank Lloyd Wright will open their doors for a rare interior tour. Most of the residences are located in the historic communities of Oak Park and River Forest, Illinois. Contact 708/848-1976.

Lectures, Symposia & Conferences

Building a Vision II: The Intersection of Art and Architecture
Boston
June 1, 2002
A distinguished panel of artists, architects, and architectural critics are invited by the Institute of Contemporary Art to discuss the blurring line between art and architecture. Symposium speakers include Aaron Betsky, Elizabeth Diller and Ricardo Scofidio, Preston Scott Cohen, and multimedia artist Judith Barry. For more information, call 617/266-5152.

A+A: Reflections on Architecture
Barcelona, Spain
June 20–22, 2002
A festival devoted to the fusion of architecture and the moving image. Architects, computer programmers, artists, and filmmakers are invited to analyze possible relationships between animation, experimental films, digital technology, and the creation of 3D space. Sponsored by the Collegi d' Arquitectes de Catalunya. For more information, e-mail coacanimatica@coac.es.

International Quingue Symposium
Newport, R.I.
June 27–30, 2002
This four-day symposium brings together architects, artisans, and scholars to examine key issues in historic preservation practices. It will feature the work of local preservationists and institutions. At the Salve Regina University. Call 401/341-2156 for more information.

Universal versus Individual: The Architecture of the 1960s
Jyväskylä, Finland
August 30–September 1, 2002
This conference will explore the architecture of the 1960s by illuminating universal currents as well as individual and regional trends. Keynote speakers include Beatriz Colomina, Claes Caldenby, and Dennis Doorman. Sponsored and organized by the Alvar Aalto Academy. Visit www.alvaraalto.fi/conferences/universal for more information.

Conventions

Society of Environmental Graphic Design 2002 Annual Conference & Expo
Denver
May 31–June 1, 2002
Join fellow architects and designers in this year's SEDG conference, entitled "Trailblazing: Crossing Frontiers." Lectures, workshops, and discussions led by the



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industry's leaders will cover a broad range of topics, including marketing, communication arts, exhibition design, and virtual reality. Also, view special exhibits and demonstrations at the accompanying trade show. At the SEGD conference center. Visit www.segd.org/events.html for more information.

Lightfair 2002
San Francisco
June 3–5, 2002
Join over 17,000 architects, engineers, and design professionals in this year's conference and trade show dedicated to architectural and commercial lighting. Over 400 leading domestic and international manufacturers will present the latest products and technology, and the most up-to-date information. At The Moscone Center. Visit www.lightfair.com for registration information.

XXI World Congress of Architecture
Berlin
July 22–26, 2002
The Union Internationale des Architectes invites architects and students from around the world to discuss responsibilities and strategies for environmental and sustainable design within an urban context. At The International Congress Centre Berlin. Call 49 30 90 12 13 14 for information.

Competitions

Art-Case Piano Design Competition
Deadline: May 15, 2002
Design Center of the Americas invites musicians, artists, designers, and students to design the first art-case piano of the 21st century. The winner will be unveiled at Design + Architecture Month in October. For more information, call 954/730-7730.

City Reemerging
Deadline: May 29, 2002
Create a vision for Winnipeg's Historic Waterfront in the upcoming Ideas Winnipeg 2002 ideas competition. Focusing on the East Exchange District in Winnipeg, Ontario, entrants will create ideas for a new urban face on the Red River. Winners will be awarded a total of $55,000 in cash prizes. For more information, visit www.winnipeg-ideas-competition.org.

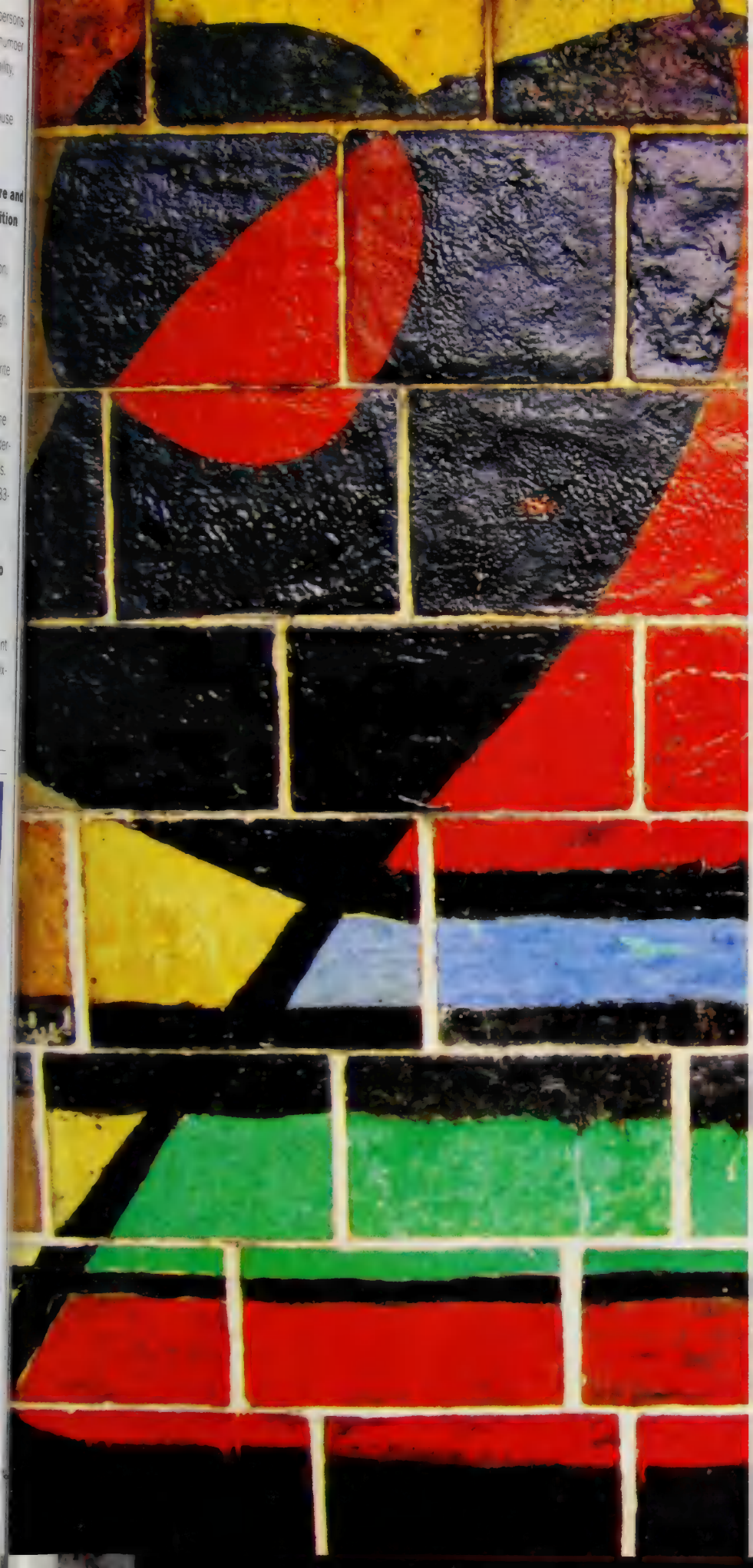
Pilkington Glasshouse Competition
Deadline: May 31, 2002
Exploring the architectural potential of glass, entrants are asked to design a house for the 21st century. The winning schemes will demonstrate a creative approach to the use of glass as part of an overall design concept. It is left to each entrant to determine the exact requirements of the space in terms of the number and age of persons to be accommodated, the number and size of rooms, accessibility, and related matters. Visit www.pilkington.com/glasshouse for more information.

Institute for Architecture and the Humanities Competition
Deadline: June 17, 2002
This is not a design competition. Rather, it is a competition for making judgments about design. Students are invited to revisit already completed work and write their own assessment of the strengths and weaknesses of the project. Open to students in undergraduate and graduate programs. First prize is $1,000. Call 312/733-7230 for more information.

11th Annual Ermanno Piano Scholarship
Deadline: June 30, 2002
This scholarship awarded to recent architecture graduates offers a six-month internship with the Renzo Piano Building Workshop in Paris,



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Miró's tile mural, Mur du Soleil (1957), at the UNESCO Building in Paris, France.

TILE OF SPAIN

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Dates & Events

France. The grant offers 10,000 euros. Applicants must submit their qualifications, including samples of previous work. For more information, visit www.rpbw.com.

The Great Egyptian Museum Competition
Deadline: August 10, 2002
An open invitation to architects from around the world to participate in the creative design of this new museum. Located near the Giza pyramids, the museum will house some of Egypt's most ancient monuments and treasures. For more information, visit www.gem.gov.eg.

Shinkenchiku Residential Design Competition 2002
Deadline: September 2, 2002
This competition, held annually by The Japan Architect, invites architects from around the world to explore the theme "Dwelling Where the Muses are Served/Spared Emptiness." The entire competition will be judged by one architect: The committee this year has selected Daniel Libeskind. Sponsored by Shinkenchiku-sha Company. For more information, visit www.japan-architect.co.jp.

Mobile HIV/AIDS Health Clinic
Deadline: November 1, 2002
Architecture for Humanity, a nonprofit organization, announces its 2002 international design competition. Architects are invited to submit designs for a fully equipped mobile medical unit and HIV/AIDS treatment center for use specifically in Africa. Entry fees, donations, and additional fundraising activities will be used to build the winner's prototype. For more information, go to www.architectureforhumanity.org.

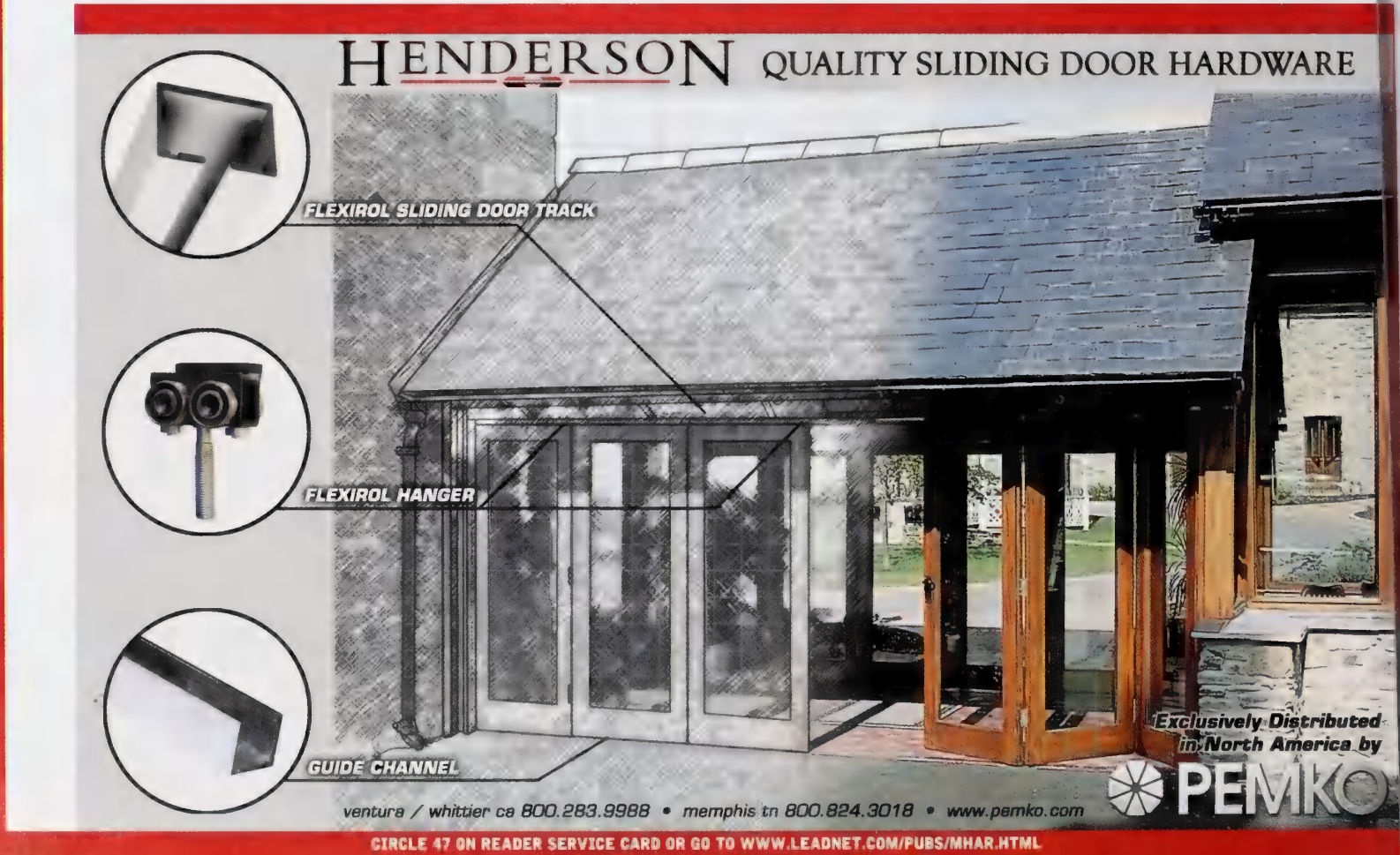
Events & Programs

Summer Program in Classicism
New York City
June 15–July 29, 2002
Spend six weeks in New York City discovering the elegance of Classical architecture and principles of traditional urbanism. Students will have the opportunity to study with leading practitioners and work directly with a design studio community on real New York City projects. Deadline for application is April 15. Contact The Institute of Classical Architecture at 917/237-1208 for more information.

Eco-ARCHitecture
San José, Costa Rica
July 9–30, 2002
The faculty of Architecture and Urbanism of Universidad del Diseño invites students and practitioners to participate in a three-week studio exploring the biophysical and sociocultural conditions of design in a tropical climate. Application deadline is April 30, 2002. For more information, visit www.unidis.ac.cr.

Summer Design Institute 2002
New York City
July 15–19, 2002
Educators and designers are invited to join a panel of international design educators to discuss strategies for engaging K-12 students in the design process. Hosted by the Cooper-Hewitt, National Design Museum and the American Institute of Graphic Arts, this one week program will feature workshops, studio visits, and keynote presentations by notable designers, including David Kelly, Eames Demetrios, John Maeda, and Eileen Adams. At the Cooper-Hewitt, National Design Museum. Call 212/849-8385 for more information.

E-mail events and competitions to ingrid_whitehead@mcgraw-hill.com. Please send notices of events and competitions two months prior to the event or deadline.



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2. Winner:
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Blacksburg, VA

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Esocoff & Associates Architects
Washington, DC

Manufacturing:
Architectural Concrete Products Inc.,
Daleville, VA

3. Winner:
Jason Lee Middle School
Tacoma, WA

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Merritt + Pardini,
Seattle, WA

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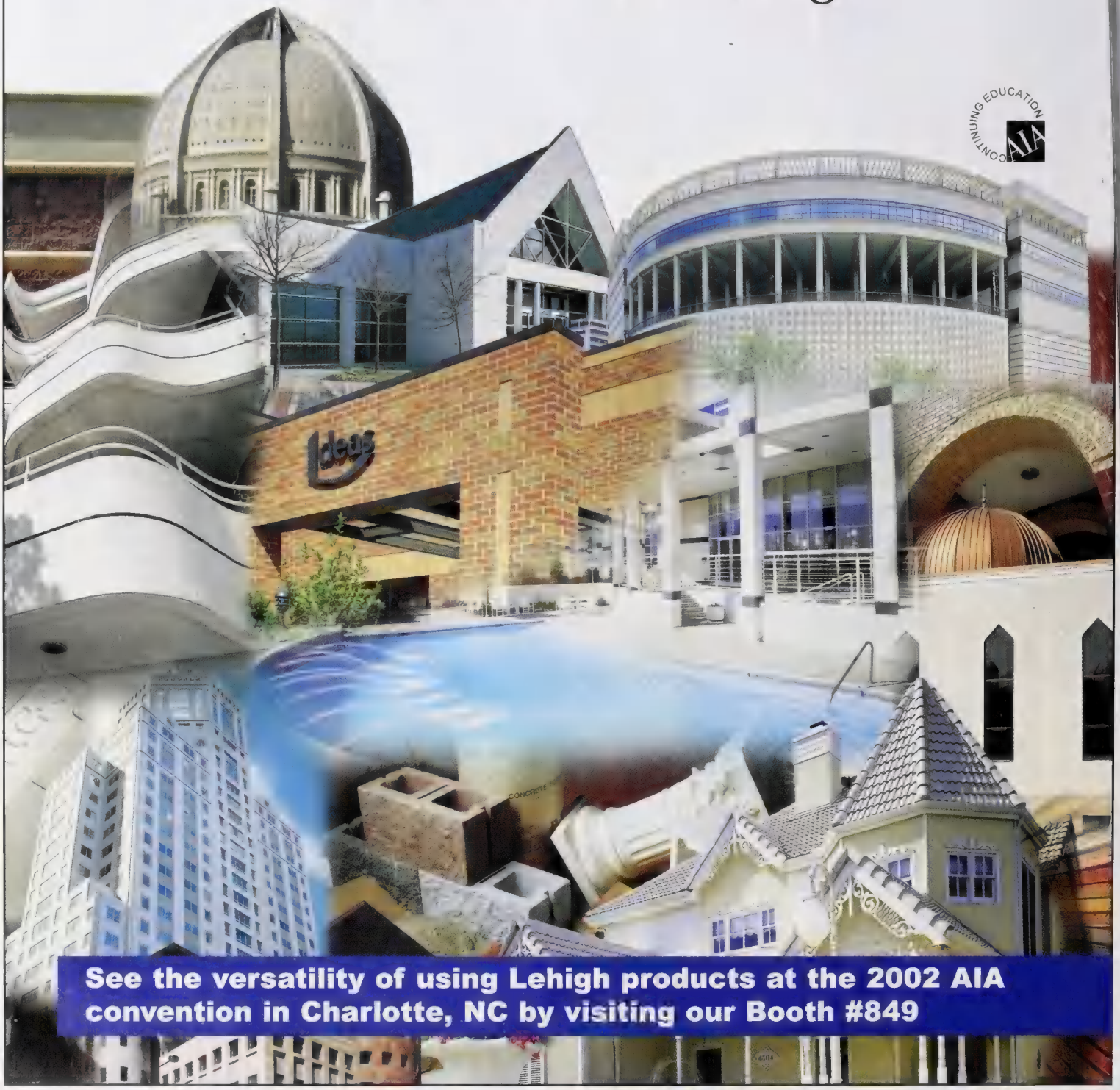
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Hammel Green and Abrahamson, Inc.



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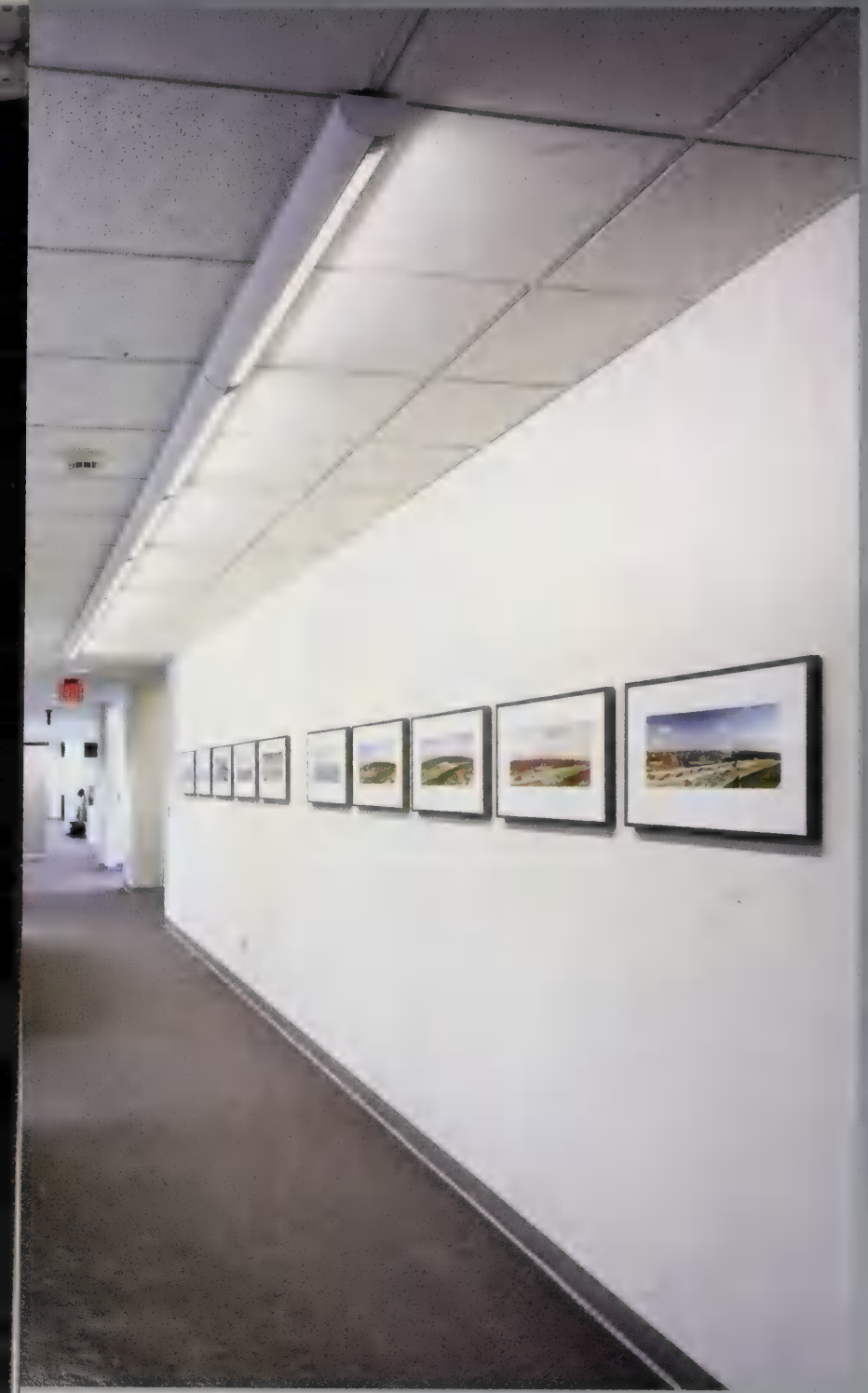
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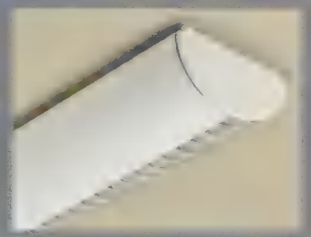


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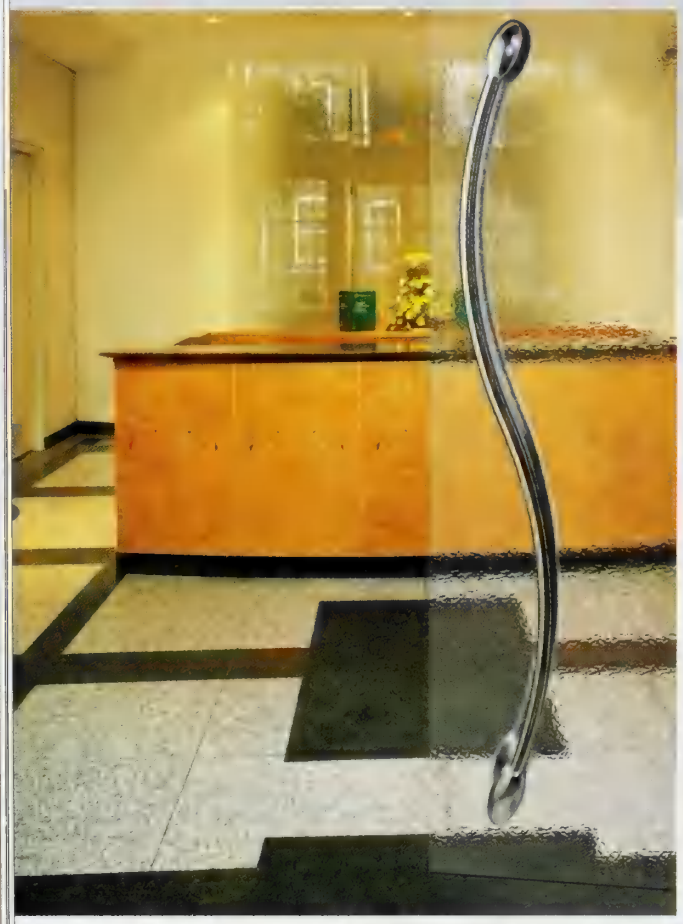
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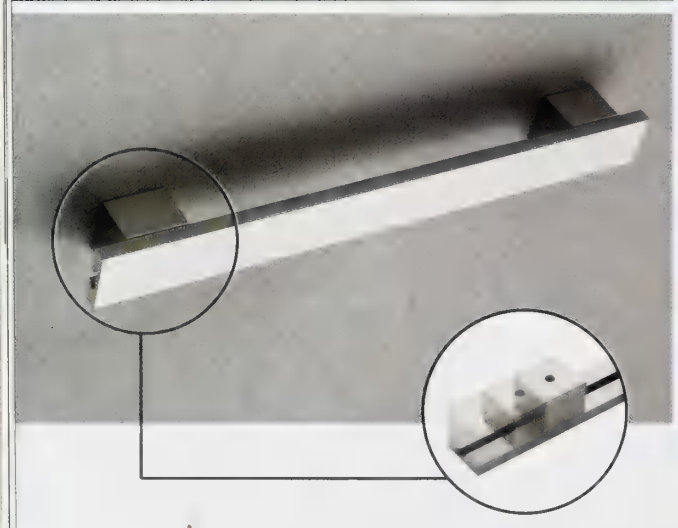
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Charlotte, N.C., embraces prosperity and builds a new identity

Correspondent's File

By Richard Maschal

In the 1920s, Charlotte produced a character who seemed to define the place. Clarence O. Kuester promoted the city's interests as a Chamber of Commerce executive with such gusto he was dubbed "Booster" Kuester. In those boom times, the city's slogan was "Watch Charlotte Grow." As proud as the city was of its leafy canopy and gracious neighborhoods, it vigorously subscribed to the New South creed that made commerce king. Charlotte grew on cotton and textiles, although few remnants of its mill-town past remain. Boosterism still defines North Carolina's largest city, now a major financial center, home to Bank of America (BofA), the country's number one consumer bank, and Wachovia, the fourth-largest bank. Their shiny towers rise over uptown (a more upbeat term Charlotte prefers to "downtown.") If "Booster" Kuester came back today, he'd see a city less enamored with growth, with setting records like being the second-fastest-growing American city in the 1990s, or with news items such as: "A recent Urban Land Institute study says Charlotte area residents drive more miles than people in all but six other major cities. Five years ago, Charlotte ranked 17th."

Now, Charlotteans increasingly worry about sprawl. For years the cry has been, "We don't want to be another Atlanta!" These days, the fate of that city—actually smaller in population than Charlotte, although its metro area is larger—seems closer.

Richard Maschal is the visual arts and architecture writer for The Charlotte Observer.

Hugh McColl, Jr., the recently retired chief executive who built BofA and an advocate for "smart growth," may have something to say about that when he gives a keynote address to the national AIA convention on May 10. Two projects, each costing in excess of $1 billion, illustrate Charlotte's somewhat ambivalent response to growth. The 65-mile outer belt that will loop the city is already congested on completed portions to the south and east, inspiring dire comparisons with Atlanta's infamous I-285. Some, worried that Charlotte's I-485 will spark sprawl at its interchanges, have called for canceling the northern and western segments before its scheduled completion in 2009. Outer-belt advocates reply that city government can control sprawl through zoning. But a recent study showed population growth along the completed outer-belt route already is moving at a faster pace than in other suburbs. And local government is not known for saying "no" to developers.

While earth movers scrape into the red clay along the outer-belt route, Charlotte also pursues mass transit. In 1999, forward-thinking county voters approved a half-cent sales-tax increase to pay for a system centered on uptown that over 25 years will include five lines of either light rail, busways, or commuter rail. The first leg, an 11.5-mile line south, is scheduled to open in 2006. Mass transit needs density to succeed, the opposite of the sprawl the outer belt seems to be encouraging. Whether this can be achieved through zoning and in-fill development in a community that loves big lawns and big houses remains to be seen. While Charlotte has not resolved the seeming conflict between these two projects, it shows signs of backing off the any-growth-is-good philosophy.

Recently, planners called for changes in general development policies to discourage strip malls, subdivisions filled with cul-de-sacs, and even front-loading garages. Davidson, a small college town to the north, afraid it would be overrun by Charlotte-inspired sprawl, adopted rules requiring builders to save open space. Also, despite political strains between the outer suburbs and inner neighborhoods, the community's ongoing commitment to uptown remains and exerts a counter pull on sprawl. In recent years, housing has sprouted among the center city's tall buildings and parking lots. By mid-2003, an expected 10,000 people will live uptown. BofA sponsored Gateway Village, a $250 million mixed-use project on the west edge of uptown designed by Duda/Paine Architects of Durham, with offices, shops, and apartments. The Ratcliffe, a luxury condo development in brick and glass near the Charlotte Convention Center, part of a $75 million Wachovia development, was designed by FMK Architects of Charlotte. The bank preserved an old florist shop and made it part of the project.

The building cranes that have floated over uptown for three decades remain. The 46-story Hearst Tower, a $300 million BofA project, is almost finished. Designed by Smallwood, Reynolds, Stewart,



Downtown Charlotte, with the Charlotte Panthers football stadium in the foreground.





The Gateway Village Technology Center (left and above) by Duda/Paine Architects of Durham, N.C.

Stewart & Associates of Atlanta, its Art Deco looks, including a frank homage to the Chrysler Building on top, nicely complements Cesar Pelli's 60-story BofA Headquarters nearby. Firms such as Smallwood, Reynolds have shown a greater concern for how tall buildings meet the street. The Hearst Tower plaza will have restaurants, shops, public seating, and an entrance into the adjacent Mint Museum of Craft + Design. During the AIA convention, the Mint will host *American Modernism, 1925–1940: Design for a New Age* from the Metropolitan Museum of Art. The museum, along with a science museum, history museum, library, and performing arts center, form a cultural district on the northern edge of uptown. It soon will have a unique project, the Children's Learning Center, combining a theater and library. The design from Hardy Holzman Pfeiffer (HHP) of New York features bright colors, bold geometric forms, and, if the budget allows, a theater sheathed in copper. Joining HHP are local architects at Gantt Huberman. Principle Harvey Gantt, FAIA, became Charlotte's first black mayor in 1983.

Charlotte once debated, in all seriousness, when and if it would achieve "world class" status. That talk is over, although a growing Hispanic population has made it more diverse. But it remains hungry for recognition and frets about the "CH factor," the tendency of outsiders to confuse it with Charleston, South Carolina; Charlottesville, Virginia; or—heaven forbid—Charleston, West Virginia. It eagerly embraces the status given by professional sports, although the NFL Panthers had the league's worst record last year and the NBA Hornets seem bound for New Orleans after a nasty fight over a publicly financed arena to be designed by Ellerbe Becket. But in a city defined by its dedication to development, at least the right questions are being asked about the cost of growth, and some tentative steps are being taken to control it. ■



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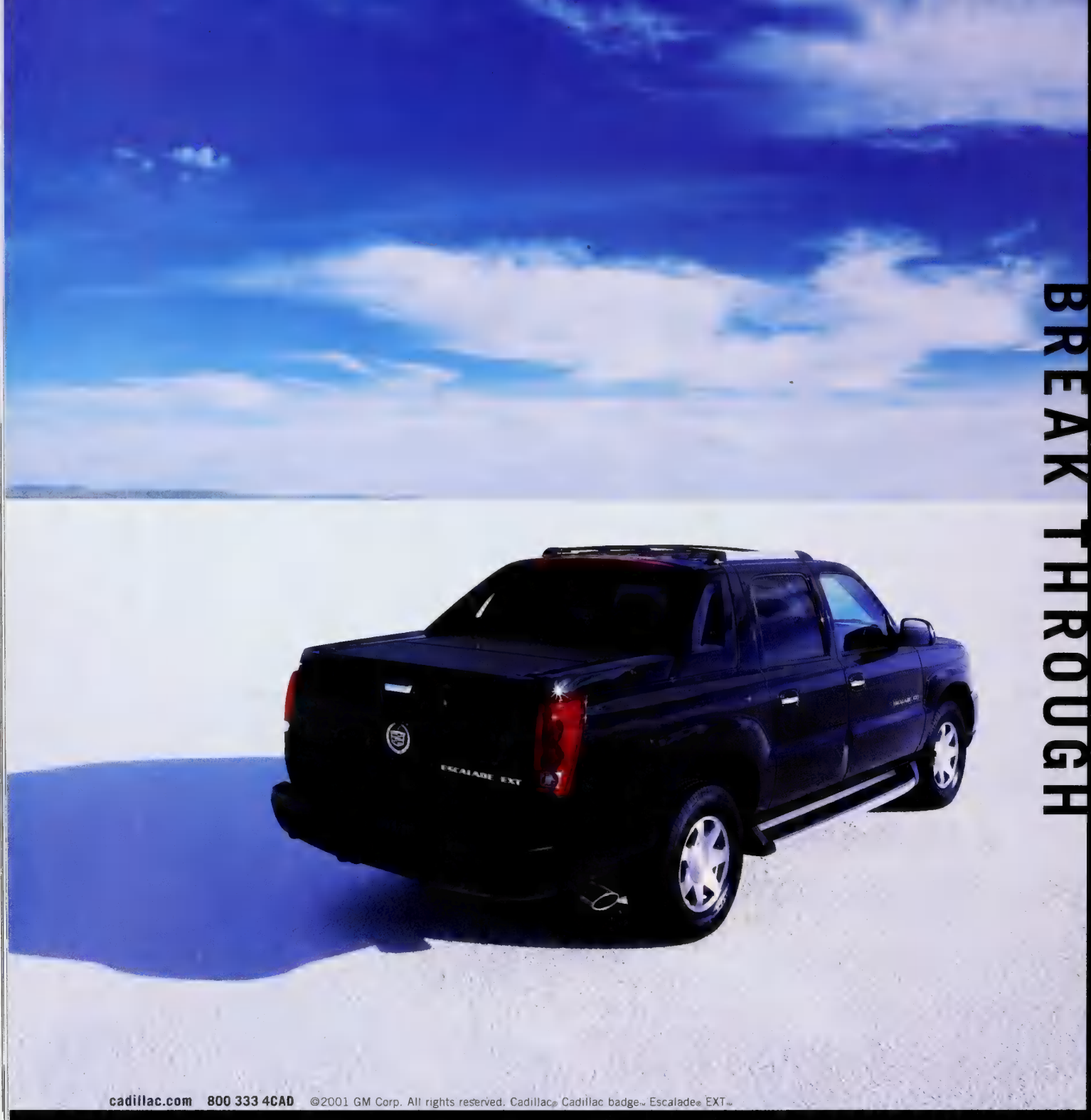


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FOR THE EMERGING ARCHITECT

This month, archrecord2 takes you from the backyard to the front office. A group of Phoenix architects collaborated on a doghouse design for a client who is an eight-year-old golden retriever. You'll see both house and dog in Live. And in Work, you'll get to look over some of the questions that new hires at architecture firms should ask prospective employers. As always, there's a Design feature, and you can Talk about it all at architecturalrecord.com/archrecord2.

DESIGN

Emergent's organizational chart

To fully understand Tom Wiscombe's web of collaborations, design partnerships, and overlapping firms, one needs to consult a flowchart. Conveniently, Wiscombe provides a sort of high-design Venn diagram near the front of his portfolio as a way of explaining the maze.

Wiscombe started his current career trajectory in 1992, when he graduated with a B.Arch. from the University of California, Berkeley, and more or less stumbled into a job at the Los Angeles office of Coop Himmelb(l)au.

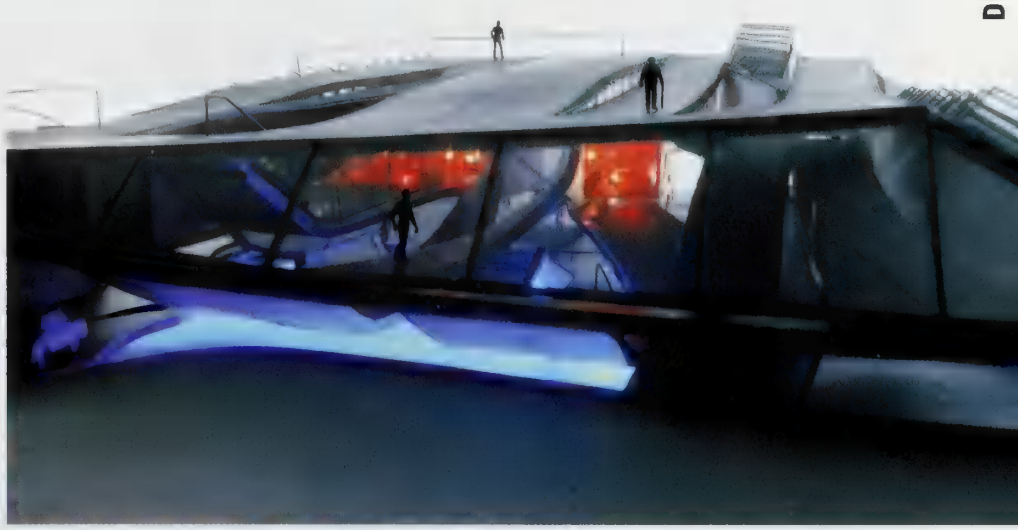


"They paid me almost nothing," Wiscombe said. "I remember surviving on ramen noodles and driving an ex–cop car I picked up at a police auction." But he rose quickly, and Wolf Prix gave him the opportunity to be the project designer in a competition for the UFA Cinema Center in Dresden, Germany. Coop Himmelb(l)au won the competition, and Wiscombe was given the position of senior designer in the firm's offices in Vienna, Austria, while he worked on the project.

In 1998, Wiscombe returned to the U.S. to study for his M.Arch. at the University of California, Los Angeles. "I needed the degree anyway, to eventually get licensed and teach," Wiscombe said, "but for me, the more important thing was to cut the umbilical cord to the office and get into a mental space where I could begin to define my own work."

It was after Wiscombe's graduation from UCLA in 1999 that his professional associations became tangled. To this day, for instance, he continues to work with Coop Himmelb(l)au on a project-by-project basis. When this cooperative is in effect, it goes by the name LA LAB and can involve not only the Vienna firm and Wiscombe, but also members of Emergent, which is a sort of hub organization that connects all of Wiscombe's various projects.

"Emergent is a kind of opportunistic arrangement," Wiscombe said, "like a cellular slime mold, which is sometimes a single organism, sometimes spread out as multiple organisms, depending on environmental conditions." For Emergent, those conditions are mainly economic, and the firm grows and



Micro-Multiple House, Los Angeles, 2001
Emergent. This speculative house is based on a system of flexible steel trusses that can be shipped in standard containers. The interior space functions as a live/work loft and includes an indoor lake.



shrinks accordingly, filling up with associate architects and interns, when projects require them.

In addition to LA LAB and Emergent, Wiscombe also collaborates with the architect Kurt Sattler, in a partnership that they call General Dynamics*. Plus, Wiscombe teaches at both the Southern California Institute of Architecture and UCLA.

Wiscombe's father is a scientist for NASA, and the architect attributes his love for materialist philosophy to his dad's atmospheric research. This interest in materialism has led to an insistence on working almost entirely with physical models. According to Wiscombe, models are the most interactive and fastest way of working."

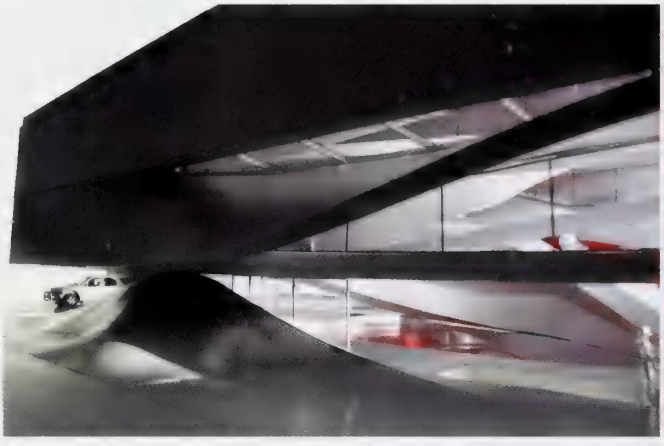
With Wiscombe's many commitments, fast is important, and so is flexible, and his business structure mirrors his design philosophy. "I think architecture has a lot to learn from the worlds of business and biology," he says, "where organizations are in constant flux and have to negotiate new deals or territories to survive. The building industry—and, for that matter, building uses and owners—is changing incredibly fast, and it is systems and organizations that endure, not places, entries, types, or facades." If it is in fact systems and organizations that endure, then Emergent—with its slime-moldlike ability to adapt to constantly changing conditions—has a bright future. *Kevin Lerner*

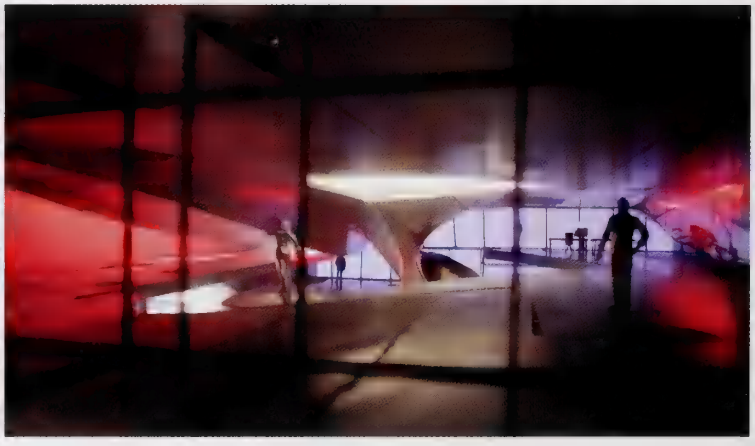
Go to architecturalrecord.com/archrecord2 to see more of Emergent's work, and to read an extended interview with Tom Wiscombe.



Palos Verdes Art Center Competition, Los Angeles, 2001
Emergent. This design is for a proposed museum and studio complex that would jut out visibly from the adjacent hillside, giving it a landmark presence. A ground-floor patio area weaves through the space, imbuing the building with a sense of continuity and community.

Radiant Hydronic House, Los Angeles, 2002
Emergent. A central "spine" combines electrical wiring, air ducts, and a system for heating the house via liquids that are warmed in radiant pools on the roof.





WORK

What to ask before you're hired

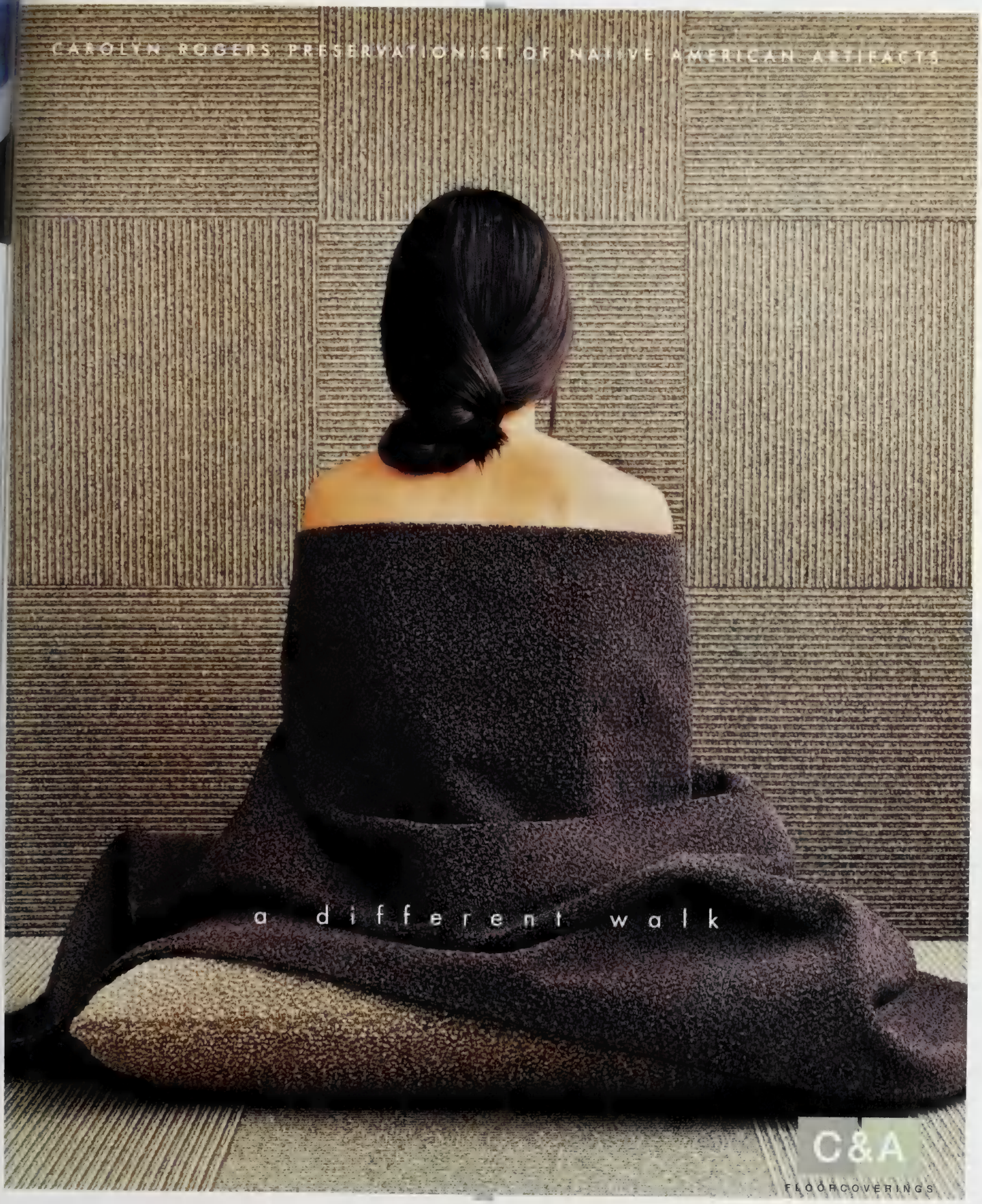
The current job market may lead recent graduates of architecture schools to believe that the only question they will likely be asking their future bosses is, "Do you take sugar with that?" But a year after getting their first position, there are certain to be questions that these young architects will have wished they had asked. In an attempt to minimize this regret, archrecord2 asked architects at small, medium, and large firms how smart job seekers can put their potential bosses in the hot seat.

"I was just so glad to get a job where people paid me money," says Dick Hudgens, of Richard Hudgens Architect, in Selma, Alabama. Hudgens emphasizes the importance of landing at a firm where job diversity is the order of the day. "How much variety will there be in the work that I do? I wouldn't want to get chained to a desk doing the same thing all the time."

"What kind of responsibilities will I have in the next year?" asks Jonathan Marvel of New York's Rogers Marvel. "In my firm, we throw out a bunch of responsibilities to new hires, and it's sink or swim. It's very important to be given responsibilities at lots of different levels to round out the architectural experience."

Arlene Matzkin of Philadelphia's Friday Architects asks, "What am I going to get a chance to do? Will I ever design anything or get to be a project architect on a small job? Some firms have a monotony about them, so you better know what you're buying into."

Peter Nicholas of Chicago's Nicholas Clark



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(continued from previous page) echoes Matzkin. "What happens in medium to large firms is that you get cubbyholed into a specialty. I'd want a firm that would allow me to grow into a role."

Marvel says architects who are starting out need "a level of self-confidence. A lot of this comes from the relationship a young architect has with the partners in the firm. You must feel comfortable, intuitively sensing the presence of dialogue."

To ensure that a young architect feels that sense of dialogue, James Williamson at Williamson Pounders Architects suggests you go to the top: "Ask principals to say something about their vision for what the firm should become in the future. It would tell the employee about the firm; whether its desire is to increase gross receipts, win an AIA award, or improve relations with customers."

This connection with the firm's senior members ("Who am I going to work for?" asks Williamson) isn't merely a question of access, it's an issue of continuing education and preparing for the next step.

"A crucial question to ask would be how to address issues of responsibility and the real coaching one could get from a partner or a project manager," says Carlo Frugiuele of Urban Office Architecture. "I often try to expose students and people who work for us between the [New York and Milan] offices to all phases of the design process, from client interviews to the production of documents and site administration."

Matzkin adds, "Hopefully, you're going to use all of your skills to move ahead or advance to another firm."

Certainly, there's a danger in asking questions—you want to get a job, not to come off as an investigative reporter. "When you start off, you're afraid to barge in and ask them anything," says Hudgens. "You can't feel inhibited."

"If it were me, I'd want to know what I might be exposed to in the first two years that will allow me to see the full range of professional experience and give me a better view of where I want to proceed," says Chris Hayes of William McDonough and Partners. "The more aggressive you are about it, the better."

The questions young architects ask may make the difference between spending the early part of a career designing skyscraper bathrooms or using it to learn skills that make a better architect. *Jason Clampet*

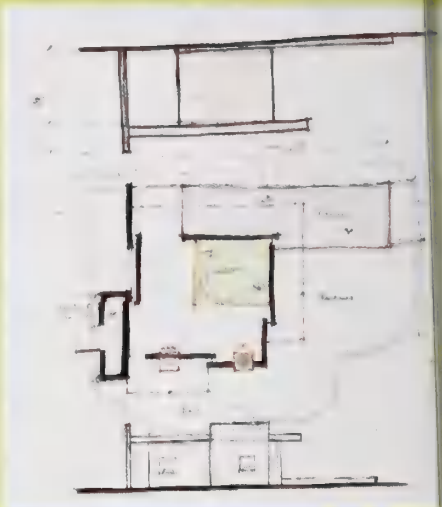
Go to *architecturalrecord.com/archrecord2* for more career stories and about young architects.

LIVE

Who built the doghouse? Woof!

Who ever said being in the doghouse is a bad thing? Especially if it has Venetian-plaster walls, granite floors, and a roof garden.

In their "Bow-wowhaus," architect Tom Payton, Doug Theberge, Michela Bull, and Lira Luis—all from Phoenix's



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Orcutt/Winslow Partnership—and photographer Natascha Payton, have spared no extravagance. Bailey, a golden retriever, lived until recently in this lavish dwelling reminiscent of Mies van der Rohe's Barcelona Pavilion, complete with a bedroom, a kitchen, and a bath. The adjoining wading pool is perfect for canine gatherings, and the roof provides a place for contemplation.

"We believe the level of attention and detail that we give to human clients is equal to the attention we give to four-legged clients," Luis says in discussing her team's approach. The design was born out of a competition called "Pawchitecture," which was sponsored by the Arizona Animal Welfare League. Now, the Bowwowhaus is on view at the Scottsdale Museum of Contemporary Art, where its roof is still mowed every two weeks.

"It's amazing," says Luis, "the grass on the roof terrace keeps growing even in the glass case."

The turf, the same used at the Arizona Diamondbacks' Bank One Ballpark, serves a major function within desert climates like Phoenix. The water for the grass terrace is pumped throughout the house, from pool to rooftop, cooling the interior like an air conditioner. The building materials also help keep the interior cool, making it perfect for warm temperatures and furry clients.

When asked about the client's reaction, Lira said, "Bailey absolutely loved it. Most of the time, he sat on the roof overlooking the yard. But sometimes, on hotter days, he splashed around in the pool."

When asked for a comment, the client, seeming to agree, said, "Woof!"

Christina V. Rogers

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Critical moment for the WTC site: Determining what gets done and whose voices get heard

Critique

By Michael Sorkin

During the week of the six-month anniversary of the Trade Center attack, I walked down to see the towers of light on a foggy evening. The clouds lay low and the effect was startling and dramatic, occluding and revealing the powerful skyward beams shrouding downtown in an otherworldly glow. It was completely beautiful and a little frightening, a genuinely aesthetic sublimity that could be taken for what it was, a feeling quite different from the embarrassed awe that shamed earlier fascinations with the twisted, mesmerizing rubble at Ground Zero.

An informal consensus

The site is now nearly clear, testament to the grim, selfless energy of those laboring there round the clock. As workers reach the bottom of the pile, they are discovering the remains of comrades trapped on lower floors and in the lobby when the towers collapsed, an awful closure. The two shafts of light seemed utterly apt during the time of transition from removal and recovery to the consideration of what is to come. They asserted the possibility of a memorial of both power and presence and set a high standard for future projects. That they were there at all also demonstrates the power of the informal consensus that has, for better and worse, begun to determine what can and cannot happen on this place.

For the moment, we find ourselves in a curious interregnum downtown. While no plans have been finalized, there has been intense jockeying for position, both publicly and, especially, behind the scenes. With the formation of the Lower Manhattan Development Corporation (LMDC), planning responsibility has, however, become clearer, even if the actual power to undertake construction remains dispersed and uncertain. The site is owned by the Port Authority (controlled by the governors of New York and New Jersey), sits within the City of New York, is laced with transport and utility infrastructure controlled by various agencies, and has been leased to Larry Silverstein—a New York real estate mogul with particularly dreary architectural sensibilities (four 50-story towers on the site was his initial public suggestion)—and to Westfield, an Australian shopping-mall-management company that was to have run the huge retail complex beneath the towers.

In addition to these legal stakeholders, the public has made its sentiments known through both traditional political activities and a welter of self-organized alliances that have been meeting regularly and working hard to promulgate ideas for reconstruction. One of the most broad-based of these coalitions—New York, New Visions—recently released a preliminary report that includes a variety of sensible findings, most crucially a call to look beyond the immediate site of the towers and consider the planning of downtown Manhattan as a whole. The report recognizes a historic opportunity to reattach Battery Park City to the island from which it has long been isolated, to increase pedestrian links, to unify and augment a series of transit lines that converge but don't quite meet at the site, to intensify the mix of uses in the area, and a number of other unassailable ideas. And they are not alone; the outpouring of proposals and opinions has been bracing. At no time in my memory can I recall so many discussing questions of planning so fervently.

As I write this, the LMDC has just released its first statement of principles for the "future of Lower Manhattan," and its board—appointed during the Giuliani administration—has been expanded to include four directors chosen by Mayor Bloomberg. These include Billie Tsien (the first design professional named); Carl Weisbrod, the president of the Downtown Alliance, which manages the Downtown-Lower Manhattan Business Improvement District; E. Stanley O'Neal, the president of Merrill Lynch; and Sally Hernandez-Pinero, a former deputy mayor from the Dinkins administration. The mayor has clearly sent a message about diversity by placing Asian-, African-, and Hispanic-Americans (among them two women) on a board hitherto dominated by white, male plutocrats.

The new principles have been whipped into shape by Alex Garvin, himself recently hired as the LMDC's vice president for planning. New York City planning commissioner,



A temporary memorial, the Tribute in Light set a high standard for future projects.

Contributing editor Michael Sorkin practices architecture in lower Manhattan and teaches at City College.

professor at the Yale School of Architecture, and author of the ingenious and politically adroit proposal for the 2012 Olympics (done with Daniel Doctoroff, now deputy mayor for economic development), Garvin has articulated a framework that is both wise and very canny. Clearly, Garvin has been listening carefully, and his recommendations parallel those emerging from the broader community of interests. The importance of the memorial is foregrounded, infrastructure and transportation are emphasized, mixed use is invoked, pedestrianism encouraged, open space celebrated, and environmentalism tithed.

The principles are very sound and should attract wide support. However, they are strategic in their avoidance of the more controversial aspects of the plan that must finally emerge. The two big issues center on who decides the fate of the site and what is actually to be done at Ground Zero. While the report and the new appointments go a long way to reassure the public about decisions many feared would be reached behind closed doors, the principles do not take a definitive position on the future of the site itself, listing but not locating uses and calling for a lot of work to take place underground. This reticence is appropriate at this stage: There is still plenty of time to get it right.

The closest the principles come to a translatable declaration of design intent is in their call for the restoration of "all or a portion of" the street grid obliterated by the construction of the Trade Center. However, the plan specifically mentions only two streets that cross the site—Greenwich Street, running north-south, and Fulton Street, running east-west—not the 12 blocks that originally stood there. Of course, an open space or memorial scheme (or, for that matter, a commercial, mixed-use development) for the site could establish connections across it without restoring the grid as such. The question, therefore, remains whether there will be a block scheme for the site—defining a series of clear development parcels—or some other approach.



Like plans being developed now, the towers of light had a regional impact.

Today, the day after the release of the LMDC's principles, Silverstein revealed his plans for the first site to be put into play, that of the former 7 WTC (which collapsed after the twin towers with, miraculously, no loss of life). The site is pivotal both because it holds an electric substation that must be replaced expeditiously and because the destroyed building had eliminated Greenwich Street, which virtually everyone now agrees should be unblocked. In the just-published diagram of the scheme developed for Silverstein by David Childs of Skidmore, Owings & Merrill (SOM), the missing block of the street has been restored, with the result that the footprint of the new building is considerably smaller than the original one. Although the new tower will be higher than its 40-story predecessor, there is a net reduction of 300,000 square feet of space.

This begs the question of what will be done with the leftover development rights, and rumors are flying that Silverstein is trying to renegotiate the terms of his lease with the Port Authority to reflect the diminished carrying capacity of the site. It has also been suggested that this may simply be the beginning of a much more protracted negotiation, to escape any potential financial liability from the consequences of the "official" plan. Indeed, rumors are also circulating that SOM is preparing studies for the entire WTC site on Silverstein's behalf as part of his strategic negotiation for a new lease.

SOM has been the ubiquitous mover downtown. Marilyn Taylor, chairman of the firm, has emerged as a key avatar of the New Visions report and is also leading a planning study of lower Manhattan's east side funded by Weisbrod's Downtown Alliance, while Childs is designing 7 WTC and doing planning studies for Silverstein. Am I overreacting to the hydra of an interlocking architect/developer directorate and the fact that all the commissions doled out thus far have gone to one firm? There is a huge potential conflict between business and citizenship here, and SOM needs to lay its cards on the table in terms of its own desires and interests for Ground Zero.

The real wild card in all of this, though, is the memorial. In recent weeks I have gotten the strong sense that the idea that the entire site be dedicated to such a memorial is being quietly slipped off the table. Most vocal among the supporters of such a plan have been the tragedy's bereaved survivors, although this is not a uniform position among them. This community has been disappointed at being excluded from representation on the LMDC and having only been offered a role on the memorial subcommittee. Advocates (myself included) for leaving most of this sacral site open as a civic memorial space seem to be increasingly marginalized. I get the impression that the "cooler heads" in power regard any such scheme as the victory of sentiment over reason (i.e., money) and that the dispassionate, "rational" position is for a mix of economic, cultural, and memorial activities on the site.

Adjudicating conflicting claims

Indeed, there is no purely logical method for adjudicating these conflicting claims. In the absence of genuinely competing plans, developed as actual designs, there cannot be a basis for deciding on the superiority of one solution over another. It would be a shame if the process were to proceed "deductively," as if the solution could simply be programmed by consensus.

IT'S TOO SOON TO CLOSE DOWN POSSIBILITIES. WE NEED COMPETITION NOW—IT'S TOO SOON FOR COMPROMISE.

Eventually, there is sure to be a competition for some portion of the site, something specifically designated as "the memorial." But the time to throw the process open is now. With a good, comprehensive set of ideas on the table, it is critical that the process engage a wide range of alternatives, formal arguments that interpret the consensus artistically, fertilizing it with invention.

Walking around the almost completely cleared site the other day, I was stuck both by the agonizing extent of the void and its profound legibility. In visual and urbanistic terms, this is not a space that *must* be built upon to find its compelling visual, functional, and expressive logics. It is too soon to close down possibilities, and that is why it is important that we have discussion and competition now, not simply business as usual: It is too soon for compromise. ■

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Proposed MasterFormat changes would radically enhance document's usefulness

Practice Matters

By Charles Linn, FAIA

MasterFormat, the 16-division system for organizing construction information that has been accepted industrywide for decades, may soon undergo a major overhaul. The executive committee of the Construction Specifications Institute (CSI) and their counterparts from Construction Specifications Canada (CSC) recently approved a concept for revising and expanding the 38-year-old system to include types of construction that were previously not covered. The two organizations recognize that construction is an activity that is constantly evolving and that MasterFormat must also change to remain relevant to the construction industry. The groups' Expansion Task Team solicited input from 500 organizations within the AEC industry, as well as from organizations whose interests are not currently covered by the document. Publishers who produce products that follow MasterFormat, such as McGraw-Hill Construction's *Sweets* and ARCOM's *MASTERSPEC*, have also given input to the Expansion Task Team, and the changes are being coordinated with the development of the Overall Construction Classification System (OCCS). The OCCS will eventually be used by all industries involved in creating and sustaining the built environment, from conception through demolition.

The new MasterFormat would greatly enhance that process, says Dennis Hall, AIA, chairman of the Expansion Task Team and principal of Hall Architects, in Charlotte, North Carolina. The system would be expanded to cover more types of construction, maintain better organizational consistency among divisions, and reserve space for future material.

"MasterFormat was started by architects who were in the business of designing buildings," says Hall, "so there is a lot of construction activity that MasterFormat didn't include before. Now, we're trying to bring the rest of the construction industry together under one common system that everybody can use. The new system would classify and organize information that was previously dispersed all over the place."

One of the things that Hall tries to emphasize when explaining how MasterFormat would be reorganized is what the document would and would not do. It would not be a system of classifying products, nor would the divisions be intended as a way to designate trade jurisdictions. "That is a huge misconception we're constantly fighting," he says. "People say things like, 'the electrical contractor owns Division 16.' That's not true. The electrical contractor's work is defined by their contract on a project. It may or may not be restricted to what's in Division 16."

MasterFormat, reorganized

The first two divisions of Masterformat—Division 0, Procurement and Contracting Requirements, and Division 1, General Requirements—would not be greatly affected by the proposed changes. Things start getting interesting in Division 2, formerly Site Construction. This would now be called Existing Conditions and would contain information on, for example, site survey, hazardous materials removal, and demolition. Items from the former Division 2, Site Construction, would be relocated to a new division, 31.

Divisions 3 to 14 would change little. But users of the new system would notice right away that in the proposed revisions, Division 15, Mechanical, and Division 16, Electrical, are given division numbers in the 20s and reorganized. Divisions 15 through 20 are to be reserved for future use.

The 20, 30, and 40 series

Here's where things start to get really radical. These new divisions would fulfill CSI's promise to take on new construction types. The 20 series, which concerns building systems, would now contain the information once collected in Divisions 15 and 16, and it would be broken into five sections. Division 21, completely new, would be called "Life Safety and Facility Protection." It would include such things as system monitoring and controls, security access and surveillance, and protection systems and alarms. In Division 22, plumbing would be given its own section. Divisions 23 and 24 would concern HVAC and electrical, respectively. Division 25, Communications, would include data systems, local area networks, telephone, and building communication systems. Divisions 26 through 30 would be reserved for future use.

The 30 series would focus on civil engineering. As mentioned, some of this information was previously found in Division 2, formerly known as Site Construction. Division 31, Exterior Construction, has information on items like geotextiles, curb and gutter, and foundations. A new section, Division 32, Exterior Improvements, would cover such things as irrigation, fountains, and site amenities. Division 33 would cover transportation, including railroad, highway, and airport work. Division 34 would comprise waterway and marine construction. Divisions 35 to 40 would, again, be reserved for future use.

The new 40 series would open up a huge amount of information that was previously not classified. Division 41, Fluid Treatment, would be the place to look for water supply and treatment equipment, and filters. Solar collectors, turbines, wind generators, and fission reactors are among the products that would appear in Division 42, Power Generation. Division 43, Processes, would contain information on process equipment, incinerators, and process instrumentation.

What's next

Over the coming year, the proposed revisions to MasterFormat will be subjected to several stages of public review. They should be approved about a year from now and offered for sale in December of 2003, according to Hall. Those who are interested can download a draft version of the proposed changes at the Construction Specification Institute's home page, www.csinet.org. ■



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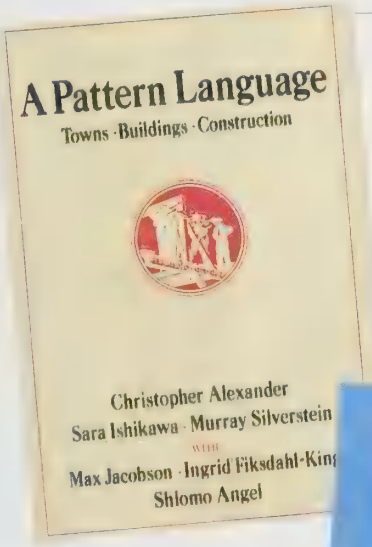
Ever more popular, ever more dogmatic: The sad sequel to Christopher Alexander's work

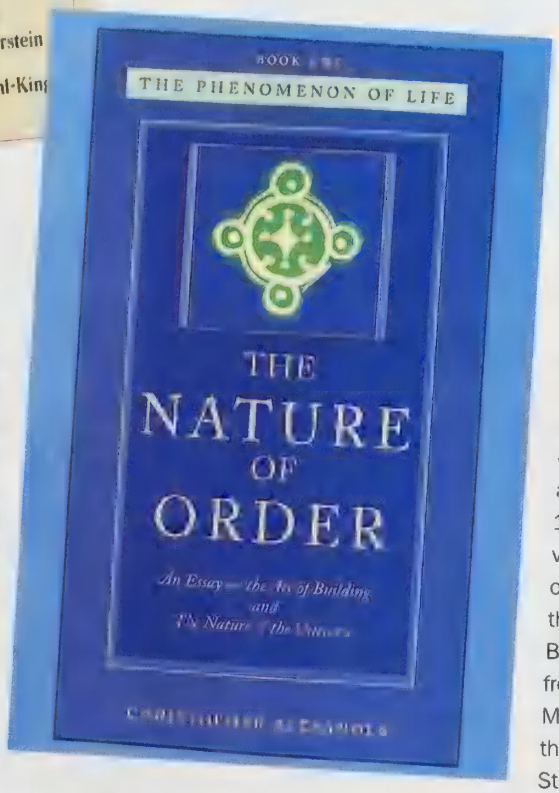
Commentary

By William Saunders

The Nature of Order, Book One: The Phenomenon of Life, *by Christopher Alexander. New York: Oxford University Press, 2002, 472 pages, $75.*

A Pattern Language: Towns, Buildings, Construction, *by Christopher Alexander, Sara Ishikawa, Murray Silverstein, with Max Jacobson, Ingrid Fiksdahl-King, Shlomo Angel. New York: Oxford University Press, 1977, 1,171 pages, $65.*





The ever-expanding scope of ambition: In 1977, Alexander focused on the built world. Today he looks at all of life.

Fame and adulation can be toxic to creative people. Surrounded by sycophants, they can lose the ability to be self-critical, become trapped in other people's ideas of them, and begin to imitate what they once did with originality and verve. Public infamy, on the other hand, can engender isolating paranoia.

Christopher Alexander presents a case in point. He garnered early success in academia for his first major book, *A Pattern Language*. Then came a steady increase in popular acclaim, accompanied by a decline in highbrow respect. Still his most rewarding book, *A Pattern Language* has been the best-selling architectural treatise in the U.S. for at least 10 years, while it and the rest of Alexander's writings have virtually disappeared from the curricula of architectural schools and received almost no attention in scholarly publications. Since its launch in 2000, the Web site for *A Pattern Language* (www.patternlanguage.com) has been visited almost entirely by homeowners and builders but by relatively few architects, a site staff member tells me. Alexander's current admirers are many, and they treat his every word as profound truth.

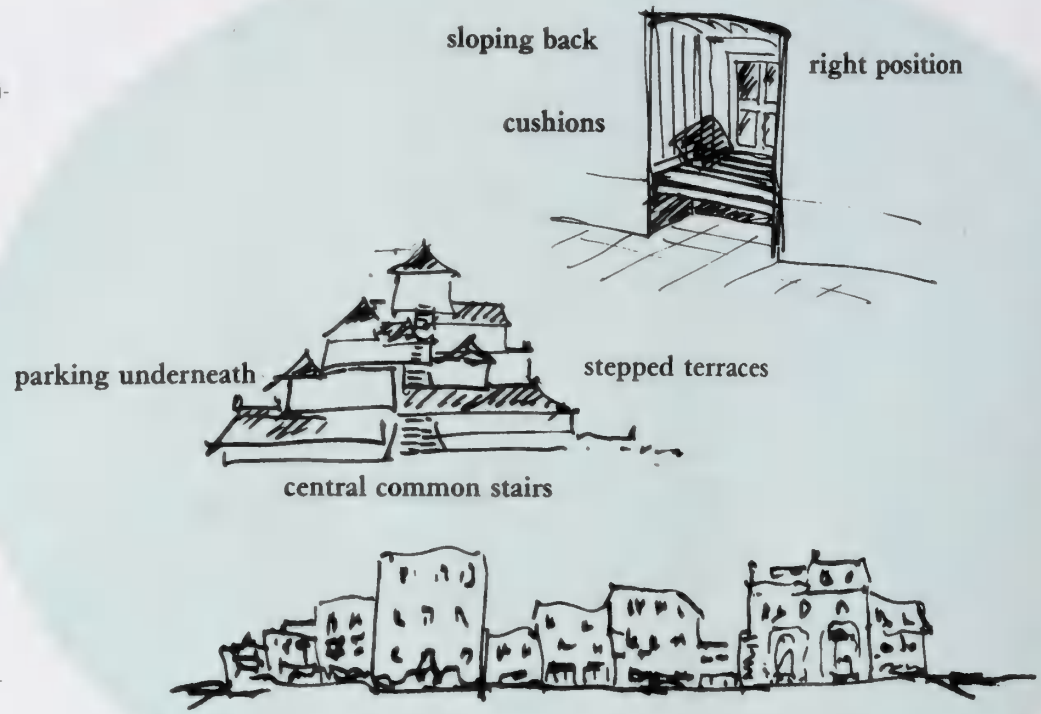
The fact that Alexander's writing has received both reckless neglect and reckless adulation since the 1980s might partially explain why his most recent book, *The Phenomenon of Life* (the first of four books to be called *The Nature of Order*), is full of pitiable delusions of grandeur and persecution. Alexander often sounds the note that he alone sees the light. While others are suffering from "mass psychosis"—his phrase for the "unimaginably bad" state of architecture—he does confess a fear that his magnum opus may be a pipe dream. It is painful to say it, but he has reason to worry. The admired main author of *A Pattern Language*, a flawed yet richly rewarding classic, has just published what I will show to be (take a deep breath) a self-deceptive, sloppy, ill-informed, and numbingly repetitious book full of contradictions, foggy generalities, and extreme and unsupported assertions. In it, Alexander condemns works without explanation; condemns image culture but treats photographs of people as mere graphics; calls Deconstruction "deconstuctionalism"; makes grammatical errors; mostly references publications that were written before 1980; and so on. (Full disclosure: I read this book in an "uncorrected page proof.")

Alexander's career as a prominent intellectual began when he was a doctoral student at Harvard. With Serge Chermayeff he published *Privacy and Community* in 1963. The next year brought his dissertation-based *Notes Toward a Synthesis of Form*. In those halcyon days, when he was not yet an institution, he wrote his most original and perceptive essays, including "The City Is Not a Tree" (1966), still occasionally studied in architectural schools. In 1967, full of missionary fervor, Alexander secured not only a teaching position at the University of California, Berkeley, but also funding from the National Institute of Mental Health to establish the Center for Environmental Structure. The Center's initial research created the content for *A Pattern Language* in 1974.

A Pattern Language's great service is to reveal how certain qualities of experience are encouraged by certain environmental structures. I began writing "certain desirable qualities," but stopped so I wouldn't fall into the trap Alexander

William Saunders is the editor of the Harvard Design Magazine *and the author of* Modern Architecture: Photographs By Ezra Stoller.

is in—refusing to see that the qualities of life that he values are not valued by everyone. In both *A Pattern Language* and his new book, ideal life for Alexander is Californian/Mediterranean—comfortable, easygoing, sensuously pleasurable, communal, and full of leisure time for socializing and solitude—life as it can be during vacations. Alexander cannot imagine that anyone would prefer a life with more conflict, intensity, and rough edges, or that his ideal life could lead to complacency. (In architecture, his preference for highly detailed, decorated, handcrafted buildings—the Alhambra is his ideal—leads him to dogmatically condemn anything Minimalist.)



Drawings from *A Pattern Language* illustrate several of Alexander's notions of creating the proper scale and compositions for buildings and towns.

A rich set of guidelines

However, insofar as we do want the kind of life Alexander seeks, *A Pattern Language* presents a rich, huge, and instructive set of guidelines. The book's greatest strength is its extensive description of delightful details of ordinary life and places. Alexander and his coauthors did wide-ranging fieldwork, making close observations, collecting photographs, and learning from experience.

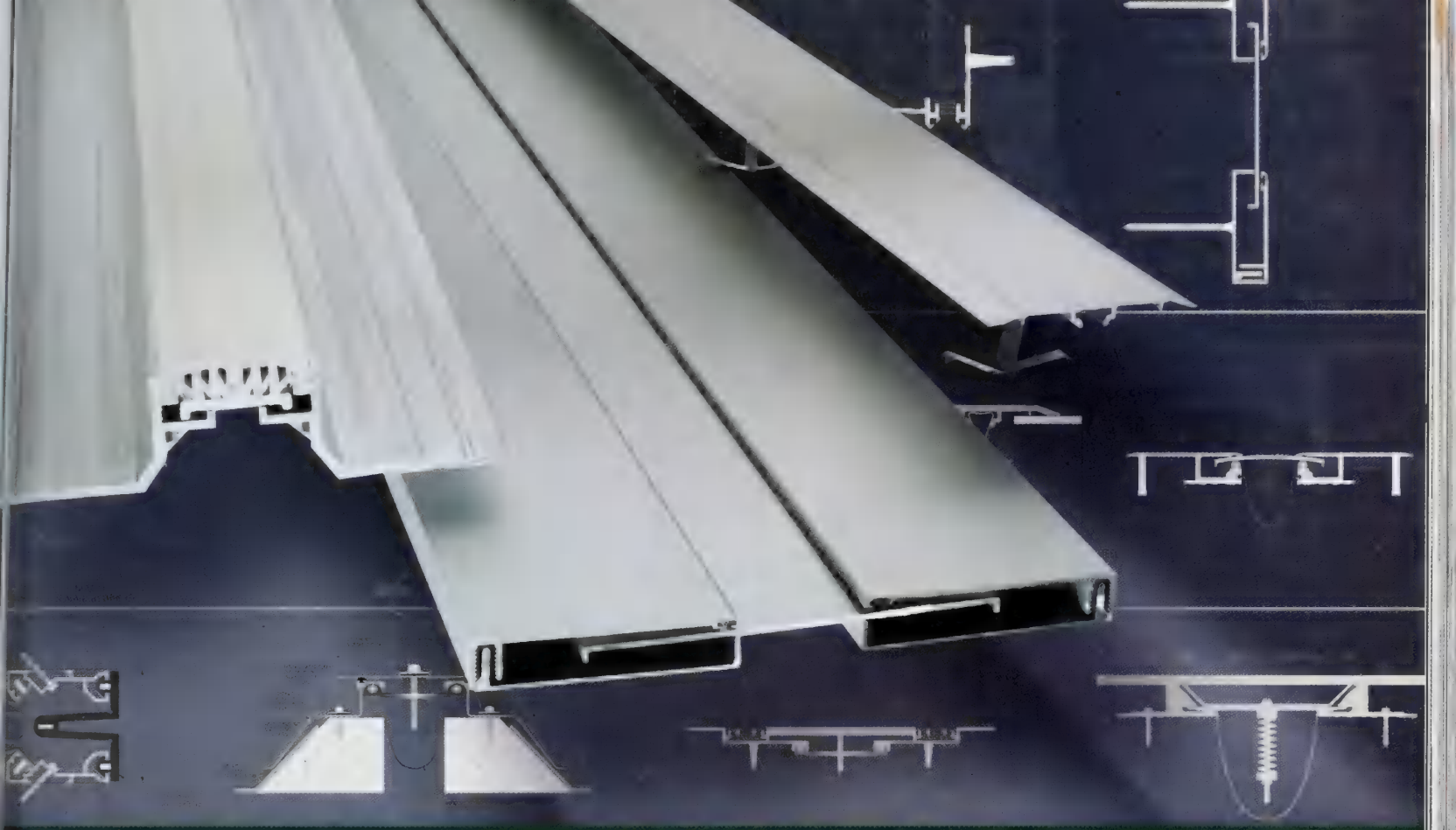
Treated as a smorgasbord for selective consumption, the book is marvelous. Many—perhaps most—of its 253 rules present ideas that are familiar to architects but worth being retold. For instance, the book's assertion that rooms should receive daylight from at least two sides may seem obvious, but it is neglected all the time in new houses and office buildings. And readers will also come across less familiar good ideas. Among them: to increase privacy in small houses, string out rooms horizontally or vertically; to increase sunlight in row houses, make them wide and shallow. Most impressively, *A Pattern Language* keeps in focus the truth that people want and need different degrees of privacy and communal involvement. It is attuned to creating zones—like balconies overlooking streets—that offer a choice of participation or detachment. And *A Pattern Language* was ahead of its time in identifying the ideas codified in the 1990s by the New Urbanists, ideas supporting mixed use, pedestrian zones, and so on.

As a smorgasbord of ideas, *A Pattern Language* will continue to be worth reading. But Alexander has always wanted his readers to consume from his work not just morsels but his whole five-course meal of design principles. Paradoxically, while *A Pattern Language* presents ideas for environments that would increase personal freedom, spontaneity, and even anarchy, it does so in an authoritarian way: "Buildings must always be built on those parts of the land which are in the worst condition, not the best." The book seeks to dictate planning and design decisions everywhere and at every scale, from the region to the mullion. Even as the book prescribes ideas to maximize individual control—for instance, that all stores and houses be owned by those who run or occupy them—enacting many of its rules would require top-down governmental control. The contradiction that freedom is to be achieved through obedience to his rules pervades Alexander's work.

WHEN TREATED AS A SMORGASBORD FOR SELECTIVE CONSUMPTION, THE BOOK IS MARVELOUS.

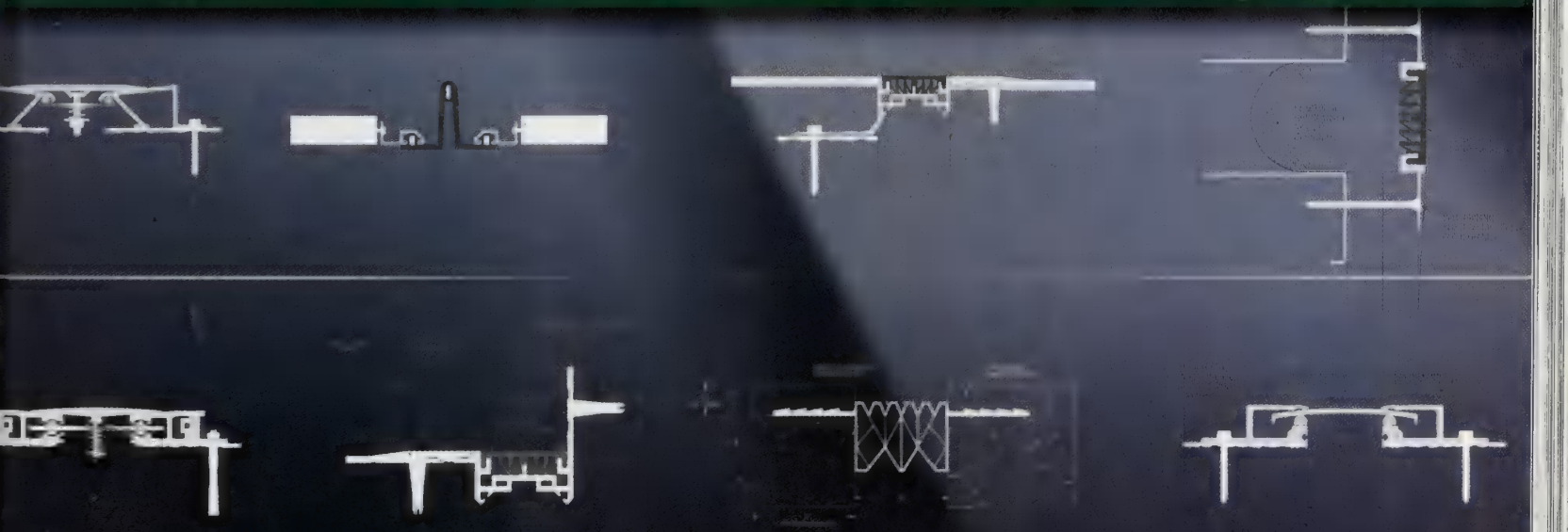
A Pattern Language presents a system of interlocking parts. The new emphasis of the Center for Environmental Structure, a researcher there told me, is on sequences of steps for designing everything from entryways to houses. Indeed the *Pattern Language* Web site offers people the chance to be guided through design sequences, a process that exerts more control than reading the book does. But then, millions of Americans buy "how to" books every year—they want the control of "authorities."

It is impossible, as well as potentially repressive, to produce a seamless system for creating environments that need to respond to our unpredictable needs and complex natures. Following some of the book's rules (for instance, "break the urban area into local transport areas, each one between 1 and 2 miles across") would prevent following other rules ("urban fingers should never be more than 1 mile wide"). If a town center were drawn in plan using all of the book's rules, the result would be a hodgepodge of competing elements. There would be a crowding together of—among many other things—grave sites, natural bodies of water, carnivals, small stores, playgrounds, animal pens, travelers' inns, beer halls, birthing centers, swimming pools, housing, and agricultural land. Alexander's imperious effort to build a comprehensive system works against his own best impulses, stifling the spon-



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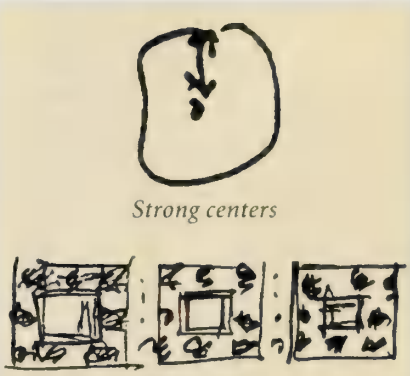
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taneity he so clearly loves.

A Pattern Language is most useful to those who are as carefree with Alexander as he would like us to be in his ideal environment. We can use his rules according to our needs, wants, and opportunities. And if we were to follow his rules as the spirit moves us, the results might be delightfully quirky, like a rambling New England farmhouse added to over centuries, full of odd nooks and crannies.



In his new book, Alexander identifies 15 properties that bring things alive.

Alexander's intentions—to encourage maximum aliveness—mark him as a radical utopian who wants to "repair the world." He cares so much about fostering a better life that he throws off the wet blanket of practicality. Allowing his wishes to run wild, he is often dreamy in a flower-child kind of way: He prescribes things like naked bathing with family and friends and high schools run by students. His is a childlike fidelity to the belief (however naive) that people are naturally good and to the hope (however naive) that in his new world, goodness would prevail.

Sadly, his latest book has all the faults and few of the virtues of *A Pattern Language*. Those who love the earlier book for its abundance of concrete detail and suggestions for improving the quality of ordinary life will be sorely disappointed by the new book's tendency toward abstraction and its distance from common experience. Written over 30 years, *The Phenomenon of Life* recalls George Eliot's novel *Middlemarch*, in which Casaubon spends his adult life trying to write a grand synthesis of all myths. Casaubon's ambitions far outreach his abilities, and his obsessive but hopeless project cuts him off both from other people and social realities. Other literary characters come to mind: Don Quixote tilting at windmills, earnestly and self-importantly fighting battles against imagined enemies. And King Lear, desperately needing loyalty, insisting that the world conform to his illusions of it, and escaping into fantasy rather than accepting recalcitrant realities.

It is rarely appropriate to focus on an author's psyche when reviewing a book, but Alexander makes his psyche a major part of this publication:

"On some days I look at the theory I have formulated in these four books and can hardly believe that it is true. It provides a view of the universe which is so surprising, and so much at odds with the normal common-sense ways of thinking about physical reality we have currently, that it seems almost like a fantasy....

"[Saint Teresa] struggled with her faith, and, in the midst of her doubt and disbelief, found occasionally for a few moments that indeed she did believe. And for this she was canonized.

"I have always identified with Saint Teresa ... Much of the time I find myself wondering if the theory I have presented can really be true, or if I have merely concocted some fantastic fiction. But occasionally, in a few lucid moments, I see clearly, and it seems to me that it must be true, simply because there is no other explanation which is equally convincing and covers all the facts. Then in another instant I am doubting again, because it is just too difficult for a hard-boiled empiricist like me to believe that the metaphysical part, especially, of what I have written, and my analysis of the nature of space and matter, really can be true."

This is excruciatingly personal. And it is more than a little odd and self-aggrandizing to compare belief in his theory with belief in God. But Alexander is right to point out that throughout the book his conflicted thinking is both metaphysical (focusing on what cannot be seen and measured) and empirical (focusing on what the senses register).

Making the subjective real

The Phenomenon of Life is, at its core, a claim that subjectivity is not really subjective but is "out there" in the objective world. Alexander gives objects a sense of self, even feelings: A wave can have "wild rage," a meadow can have "tenderness." In Alexander's view, the more "self-hood" things have, the more life they have. Any two things, even stones, can be compared to determine which has more life. This is so, says Alexander, because certain visual properties create and indeed are aliveness. Alexander claims to have "discovered" 15 such properties, things like internal differences of scale, strong boundaries, "good shape," gradients, and roughness. How has he discovered these properties? By consulting his feelings and seeing what qualities make him decide that one thing is more like his "deepest" self than another thing.

This is all maddeningly self-contradictory. Notice how slippery the following passage is: "We can see that [the things I have said have life] also are bound up with, and cause in us, deep personal feeling. They have deep feeling. They awaken feeling in us." Alexander is desperate to have it both ways: Things have feelings and they cause feelings. But all he can really know and express about what has "value" is what he feels. So he simply and baldly makes the following assertion again and again throughout the book: If I feel a thing is objectively there, it is objectively there.

Alexander's stance is solipsistic: He is making the world over to suit himself, to be a colony of his psyche: "I did not impose on myself the modesty of judgment typical in a pluralistic society. I did not worry about 'my' values compared with someone else's values. I simply identified those examples which had the greater degree of wholeness they induced in me, and assuming, with as much confidence as I felt to be real and reliable, that what I measure here would also be shared with others."

Here lurks the dubious central idea of *The Phenomenon of Life*: All people at all times have the same responses to the same things. Believing this, Alexander can assume that his feelings are timeless and universal. When his students don't share them, he asserts that they have been brainwashed—he just has to push them harder and they always come around ... after some "squirming."

Alexander ends *The Phenomenon of Life* by revealing to us an epiphany he experienced as a young man visiting a Buddhist temple. Did he experience God and realize that he had to devote his life to what lay beyond his own paltry being? No, quite the opposite: He discovered that the world had been made for him. After having climbed a stairway up through hedges until it suddenly ended, he sat on a step and was stunned when a dragonfly landed beside him: "I felt certain—no matter how peculiar or unlikely it sounds today, as I am telling it again—that they had made that place, knowing that the blue dragonfly would come sit by me." From then on, he knew that he was the measure of all things. ■

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Looking at sprawl and listening to architects talk about themselves and their work

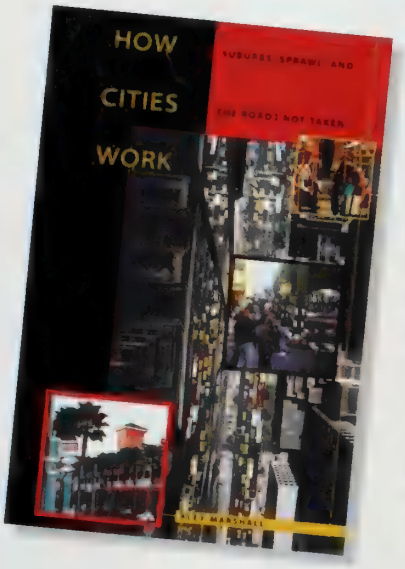
Books

How Cities Work: Suburbs, Sprawl, and the Roads Not Taken, *by Alex Marshall. University of Texas Press, 288 pages, $25 (paper).*

In this important new book, Alex Marshall attempts to make sense out of the nationwide battle over suburban sprawl and the declining sense of place in the communities where most Americans live and work.

For more than a decade, Marshall witnessed battles over suburban growth management and urban revitalization at close range in his role as a reporter for *The Virginian-Pilot* in Norfolk, Virginia. With Norfolk as home base, he journeyed to four communities—Celebration, Florida; the Silicon Valley, California; Jackson Heights, New York City (in the borough of Queens); and Portland, Oregon—all archetypes for the new American metropolis. While Marshall is critical of the public policies and investments shaping today's sprawling communities and of the New Urbanism, his book is not a polemic like James Kunstler's *Geography of Nowhere*.

Marshall's central thesis is that public polices and investments shape cities and regions. In particular, he believes that transportation systems play a critical role in establishing patterns of urban development. He believes American transportation, instead of reinforcing cities, tends to mindlessly expand them. Real urbanism, he asserts, comes from organizing streets around pedestrians' needs for short distances and around public transportation for longer-distance travel. To reverse postwar policies that ignore pedestrians and transit in favor of cars—a reflection of deeply felt, though largely unexamined,



public values—will require refocusing public policy on the needs of communities, not just individuals, Marshall writes.

His description of Celebration, Florida, is a scathing criticism of New Urbanism, in particular of some New Urbanists' emphasis on site planning and architectural details at the expense of regional planning concerns. His comparison of Celebration with the nearby "real" community of Kissimee underscores, he believes, the need to reinvest in existing communities rather than in isolated, elite new subdivisions.

He contrasts the dynamic wealth-creating role of suburban centers, such as Palo Alto and Sunnyvale, with the emerging role of San Francisco as a high-end suburb and cultural center. At the same time, he notes, older urban areas such as San Jose and East Palo Alto have been relegated to providing housing of last resort for the poor and working classes. These new roles reverse the traditional ones of cities and suburbs.

Marshall's Jackson Heights case study stresses the critical role of pedestrian- and transit-friendly communities in accommodating the newest wave of immigrants. Here, dense shopping streets and residential areas force old and new residents from dozens of countries to deal with each other as neighbors. Marshall concludes that New York's investment in restoring its transit system has played a critical role in creating this new society and underpinning the city's economy.

Finally, Marshall finds that in Portland, a regional urban growth boundary, investments in light rail, restrictions on highway building, and the city's promotion of downtown development have reversed trends toward sprawl.

While Marshall declares that *How Cities Work* is more about understanding than solutions, his case studies do show the way. He ends with three recommendations: 1) Build cities around public policies and investments, not private developers' wishes; 2) Invest in transportation systems that reinforce existing cities, and adopt policies that encourage public transportation; 3) Promote regional governments with the authority to shape new patterns of metropolitan growth built around transit- and pedestrian-oriented communities.

In many ways, this book is the 21st-century analogue to one of the most important planning books of the past century, Benton MacKaye's 1928 landmark, *The New Exploration*. Like MacKaye's book, which shaped the thinking of generations of regional planners in the 20th century, *How Cities Work* could become a touchstone for coming generations interested in comprehending and redirecting metropolitan growth.

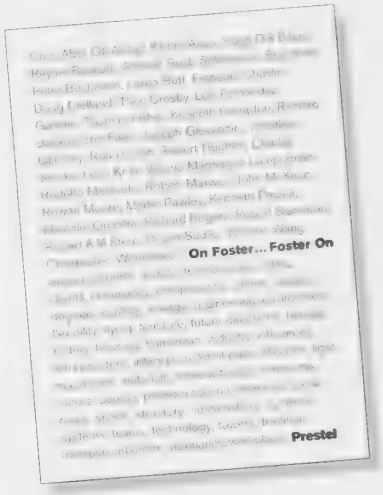
Robert D. Yaro, president, Regional Plan Association of New York

On Foster ... Foster On, *introduction by Deyan Sudjic, edited by David Jenkins. Munich, London, New York: Prestel, 814 pages, $75.*

When Lord Norman Foster was awarded the Pritzker in 1999, the prize's executive director, Bill Lacy, wrote that the British architect's designs pushed "modern technology to its artistic limits" and that his architecture "will undoubtedly be the standard for much of the architecture of the next century." The 49 essays about Foster in the first part of this book, written by 15 architects and critics over a 25-year period, flesh out Lacy's assertion. Nearly all are laudatory, although there is an exception or two, as when François

Chaslin describes Foster's buildings as "technical contraptions" and writes that his architecture "remains cold, sometimes almost clinical in its perfection." But taken together, the essays amount to a *Festschrift*, a celebration of the 66-year-old architect's career.

During the past decade, Foster has moved from the design of individual buildings to tackle complex urban challenges. His airport in Hong Kong, for instance, involved building two suspension bridges, 21 miles of highway, a mass-transit rail system, the removal of a mountain, and the creation of an artificial island. "There was, as always with



Foster, a search for the bigger picture," Deyan Sudjic writes in the introduction. "What has changed, however, is the architectural climate." It has allowed Foster to design a crop of Pacific Rim cities and to help European rust-belt cities, including Duisberg, Germany, to recreate themselves. Sudjic believes that such works as the Hong Kong and Shanghai Bank—which seemed to define Hong Kong while reinventing the skyscraper—show that Foster comprehends both the impact of galloping globalization and the need to create a sense of individual identity and difference.

The essays in *On Foster* describe Foster as the design guru of a new machine age, a humanist, a rationalist, a wizard of glass construction, a contextualist, a brilliant office-space planner, and a master of the elegant detail. "Is he not himself Superman, flying solo in his gliders and helicopters, above this confused world?" asks Chaslin, not without sarcasm.

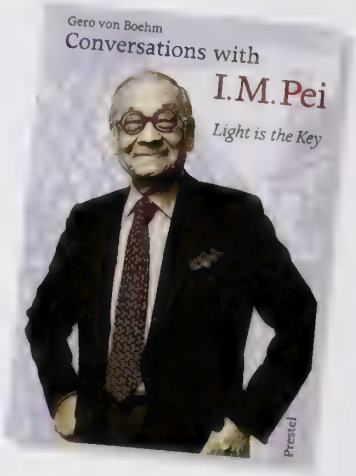
But in the *Foster On* section of the book, comprising 50 short essays by Foster—some about other architects and their work, some about his own designs and ideas—the architect seems less a hero than a methodical and impersonal technician. Stylistically, even intellectually, his writing is prosaic.

While the book's printed text is liberally sprinkled with small but sharp black-and-white photos and drawings, to really see Foster's projects, you need to spin the beautifully designed CD-ROM that accompanies the book and fits snugly into its front cover. In addition to describing Foster's practice and his projects, classifying them by building type, and listing awards and publications, the CD-ROM has a section called "inspiration." There you find images from the world of aviation and space exploration, including old and new fighter and commercial planes, Cape Canaveral launching towers, and airports. You'll also find offshore oil rigs, trains and train stations, medical operating theaters, and a variety of glassy arcades and glazed buildings. Foster's muse, it would seem, is Mercury, the ancient god of speed and commerce.

Andrea Oppenheimer Dean

Conversations with I.M. Pei: Light is the Key, *by Gero von Boehm. New York: Prestel Publishing, 128 pages, $30.*

Like most American immigrants, I.M. Pei is rooted in at least two cultures. Born in Canton, China, in 1917, he was taught the Confucian ethics and traditions of his forebears. He first encountered Western culture at age 10 in Shanghai, "the Paris of



the East" at the time, which he found "very exciting, but also a very corrupt place. So I learned both good and bad from Shanghai."

Gero von Boehm uses an interview format to tell the story of Pei, a quietly impassioned, calm and cautious, yet iron-willed architect. The interviews, most probably controlled and edited by Pei with a view toward his legacy, tell at least as much about his vision and values as his work. They reveal how he was scarred at 13 by his mother's death, emotionally excited soon afterward by the discovery of classical music, and thrilled at 19 at the prospect of going to the U.S. "to learn, so that I could return and serve the country. For the Chinese of my generation, patriotism was a very powerful force."

Pei graduated from MIT in 1940 and proceeded to Harvard's Graduate School of Design. Doubts about his design abilities initially directed him toward engineering, he says, until Professor William Emerson, a descendant of Ralph Waldo, scolded him. "Young man, that is rubbish. I have never yet met a Chinese who cannot draw." At Harvard, Pei learned discipline from Gropius and gentler qualities from Breuer, his "teacher and best friend at Harvard … He kept talking about light"—the absence of which, Pei now believes, renders form inert and space static. He soaked up Corbu, recalling the architect's two-day visit to Cambridge in 1935, "dressed in black with thick glasses," as "probably the most important days in my architectural education."

After Harvard, Pei put in 12 years working on urban development projects for the developer William Zeckendorf because he "wanted to learn something about real estate." To his apparent surprise, he also learned about politics, how "to sell an idea to a city or a state." He learned where power resides in civic undertakings, and "that good ideas are worth nothing without allies who support them." He says that while working for Zeckendorf he acquired skills that allowed him to build the Louvre extension in the early '80s.

In the interviews, Pei describes superior architecture as "the where, the when, and the why … [addressed] convincingly and eloquently and with style." We hear Pei denigrate architecture that emphasizes style and admit to weaknesses in his own designs. Of the Kennedy Library, for instance, he says, "I think there was a loss of energy and ambition in ourselves, architect and client." We listen as he confesses envying "those who can design beautiful furniture, but not those who design coffee pots." We hear a talented designer, armed with knowledge and a clear vision, pass on his views and experience. *AOD*



Architects on Architects, *edited by Susan Gray. New York: McGraw-Hill, 114 pages, $40.*

Get architects to write about their mentors and they may disclose more of themselves than when writing or talking about their own work. Such revelations are among the pleasures of this book. The 24 contributors are well known. Some reveal themselves to be quite selfless, some to be self-absorbed, but all show themselves to be "people who think and learn, and whose

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ideas do not spring full-blown from their heads," as Paul Goldberger accurately says in the foreword.

Some have written gemlike tributes, notably Tadao Ando to Le Corbusier and Norman Foster to Paul Rudolph. Others are more solipsistic, particularly Michael Graves, FAIA, on Le Corbusier. A full five eulogize Corbu, which doesn't come as a surprise. But that Rudolph is honored by four—albeit four Yalies—is telling, and especially that one of them is Robert A.M. Stern, FAIA, who has spent most of his career rebelling against Rudolphian Modernism. And who would have guessed that Henry Cobb, FAIA, would select H.H. Richardson as his mentor, in part for his "intuitive capacity, which we would not be wrong to call genius"? Or that Richard Meier, FAIA, with his many built references to Corbu, would nevertheless single out Wright and Fallingwater?

But, remember, this is a book about memory, and, as John Irving wrote in *A Prayer for Owen Meany*, "You think you have a memory, but it has you." *AOD*

Marcel Breuer, Architect: The Career and the Buildings, *by Isabelle Hyman. New York: Abrams, 2001, 384 pages, $85.*

Isabelle Hyman's long-awaited monograph on Marcel Breuer (1902–81) is generous with facts but stingy with appreciation. It is divided into two roughly equal sections: "A Professional Life" offers more detailed biographical information than any previous book about Breuer and, tangentially, much information about the genesis of the Modern movement in Germany, England, and then America; "Works" offers descriptions of about 250 Breuer buildings and projects, most of them illustrated with photographs and plans. The two parts combine to make this a valuable reference work.

But this is not a book to kindle enthusiasm for its subject. No one book can do everything, of course, and Hyman admits in her preface that she omits "the subject of Breuer and architectural structure," even though "in the case of many Breuer buildings … the structure is the architecture." That being true, the consideration of structure would seem essential. Also ignored is Breuer's famous furniture design, less important than structure to an understanding of his buildings, but hardly irrelevant.



Hyman does mention some critical controversies attaching to Breuer's work: the quality of his furniture design vs. the quality of his architecture; the quality of his houses vs. that of his large buildings; Gropius's design vs. Breuer's; painterly vs. monumental forms; the International Style of white cubes vs. a more ingratiating modernism of natural materials. But these subjective areas are not pursued in the objective biographical section.

Hyman's opinions surface clearly in the "Works" section, however, and they are often negative, particularly in her consideration of the larger buildings. For those, Breuer attempted to animate facades of many repetitive floors with prefabricated concrete panels that incorporated structure, window frames, and air handling; their faceted depth provided some degree of sun shading and a great

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degree of visual variety, especially on those facades Breuer was able to curve. The results varied in their degree of success, admittedly, but Hyman, while referring to "the sculptural chiaroscuro of the later work," and while letting Breuer off the hook rather easily by calling his plan for a 55-story tower over Grand Central "ill-advised," peppers most of her descriptions of these buildings with scorn: "banal … lifeless … repetitive, formulaic … monotony and inertness … creative dead end … visually stultifying … uninspired … dehumanized"—this last word seeming particularly inappropriate for Breuer's work. One has to feel sorry for an author who feels forced to write about so many buildings she hates.

Hyman even criticizes Breuer's refusal in his last years to exchange his Modernist ideas for Postmodern ones, saying that "the changed world of architecture … was passing him by," making his buildings "dated" and "retrograde." This is a view that might have been excused from a faddist of the '70s, but not from a present-day observer who must have noticed that Postmodernism has fallen largely from view while Modernism continues from strength to strength.

Hyman's work displays admirable industry and scholarship and will consequently be useful for years to come, but—unlike Breuer and his architecture—it has no eye and no heart.

Stanley Abercrombie

Survival City: Adventures Among the Ruins of Atomic America, *by Tom Vanderbilt. New York: Princeton Architectural Press, 224 pages, $25.*

Tom Vanderbilt shows us in *Survival City* that a lot of people spent the cold war preoccupied with calibrating the most efficient way to vaporize architecture. Hence the world's first underground elementary school, the missile silo, and, of course, all of those fallout shelters with their ominous black-and-yellow signs. Vanderbilt, a self-described "cold war tourist," aims to discover what we built during the last century's unchecked defense spending and military sprawl. He leads us through nuclear proving grounds made to look like miniature German suburbs, long-forgotten congressional relocation bunkers, and Nixon's pyramid, a missile-site radar tower in North Dakota. Although these relics now seem quaint, the question of how architects and engineers respond to the threat of attack today does not. Vanderbilt asks the question: "How does one design for security without simultaneously heightening feelings of insecurity?" However, writing before September 11, Vanderbilt unfortunately missed a chance to connect his research to the present, and his four-page postscript on the recent attacks falls too short to generate intellectual debate. Still, if this book teaches us anything, it is that a civilized society will not sacrifice aesthetics for safety. Architects employing the dominant expression of the cold war era, the International Style, largely disregarded the sober advice of civil-defense planners to create subterranean, windowless shelters; many of their clients accepted the liabilities of urban density and determined to live and work in glass-and-steel towers, however vulnerable they might be.



Will Yandik

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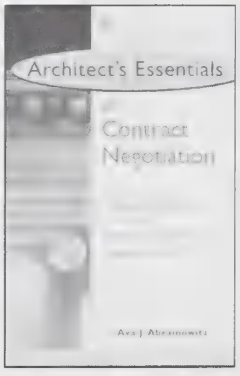
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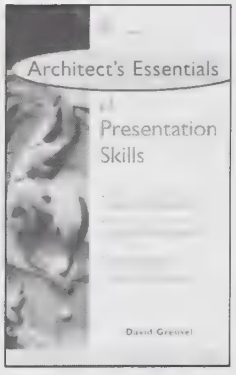
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Taking the A train to Queens: Housing alternatives for a new seaside community

Exhibitions

By Jayne Merkel

Arverne: Housing on the Edge, *originated by the Architectural League of New York, Gallery of the Yale School of Art and Architecture Building, New Haven, Conn., February 11–March 8, 2002.*

"Arverne-by-the-Sea" sounds idyllic—a New York City neighborhood with subway service to Manhattan and only blocks from a beautiful beach that runs all the way to the Hamptons.

Hoping to make this dream come true, leaders of the Architectural League of New York commissioned studies from four teams of designers just as the city's Department of Housing Preservation and Development (HPD) was issuing a Request for Proposals (RFP) for the site, the largest developable tract of vacant land in the city.

In the 19th century, grand hotels and Shingle Style mansions lined Arverne's boardwalk. But fires and hurricanes in the first decades of the 20th century took their toll. By the 1930s, it had become an inexpensive resort with rows of simple beach bungalows. Then it declined further. After World War II, the New York City Housing Authority built high-rise housing projects there, and the area became predominantly poor. In 1965, Arverne was designated an urban-renewal area, and most of the old, low-rise houses were torn down.

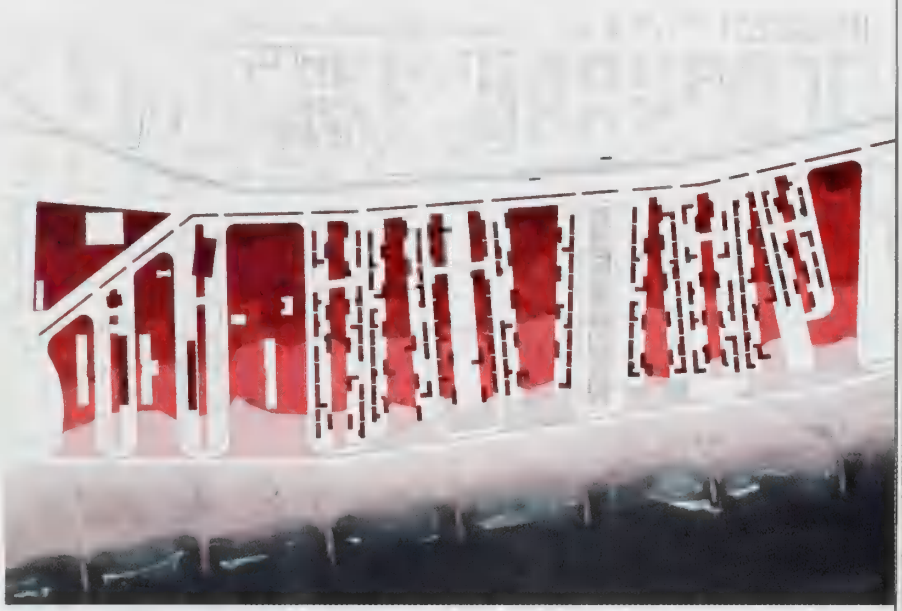
Today, Arverne has the largest concentration of public housing in the city and is infamous for its vacant lots where packs of wild dogs roam. There are no grocery stores or job opportunities.

In December 2000, as the city advertised its RFP for "the development of market-rate housing and community and commercial facilities" on 100 acres of the 308-acre site, the League held a housing symposium and invited architects who had been studying housing in their academic studios and professional offices to develop schemes.

Alternatives to the norm

The League had hoped to present the theoretical studies before the city selected a development plan so it might inspire alternatives to the one- and two-family row houses that have become the norm in New York's outer boroughs. But the HPD felt it had to proceed, so the League opened its show this past winter at the same time the city awarded the project to the Benjamin Development Company and the Beechwood Organization, working with Ehrenkrantz, Eckstut & Kuhn Architects (EEK). The League's show was recently on view at Yale.

In putting together the exhibition, Rosalie Genevro, the League's executive director, selected architects with a variety of design approaches. The show certainly presented a range—from an economic analysis illustrated with abstract geometric forms (developed by CASE, a new Dutch research foundation founded by architects) to an experiential scheme with vibrant, almost pulsating versions of buildings (from Michael Sorkin at City College). Team leaders did the work in their own offices, drawing on ideas they had been developing (in some cases for years) in books and in the classroom.

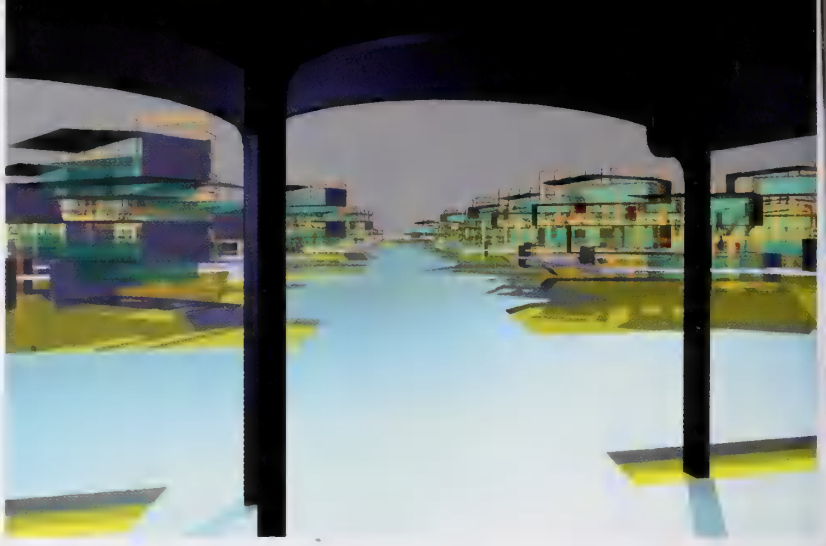


Deamer + Phillips and a team from Yale focused on environmental issues.

The Columbia University team—which included Michael Bell, Mark Rakatansky, Scott Marble, and Karen Fairbanks—proposed a variety of dwelling types to create transitions from the old bungalows and new row houses on the east side of the site to the high-rise slabs on the west. The designs ranged from Bell's glass-walled houses on stilts to Rakatansky's solid-walled, Modernist boxes that form a street wall, and Marble Fairbanks' row houses with curving "expanded roofscapes" clustered around courtyards.

The CASE team—including architects Bruce Fisher and Beth Margulis, along with John Bosch and Reinier de Graaf—produced a kind of moonscape on the dunes. To encourage long-term economic development related to Kennedy airport, CASE concentrated its initial efforts on improvements in infrastructure. The plan would allow roads that no longer serve buildings to return to landscape, discouraging the growing tendency to build single-family suburban housing on the peninsula's existing urban grid. It would also build new "soft" roads along topographical lines, as the need arises, fostering clustered housing.

Jayne Merkel is a contributing editor at AD Architectural Design *magazine and the former editor of* Oculus.



SYSTEMarchitects from City College envisioned a techno-romantic town on the sea.

Environmental challenges

The Yale team focused on infrastructure, too. Concerned about the environmental challenges posed by the fragile dune landscape, ocean storms, and decrepit streets and sewers, Diana Balmori, Deborah Berke, Peggy Deamer (of Deamer + Phillips), and Keller Easterling suggested creating a natural system with drainage swales; porous paving; and plants, bacteria, and sunlight that treat effluents, instead of rebuilding the "hard" drainage



Housing by the Columbia team.

that is there now. Their plans for boxy energy-efficient buildings in various densities and hybrid types call for modular construction to minimize cost and speed production.

Manufactured housing also plays a role in the scheme developed by the City College team, which emphasized the pleasures of the beach-front environment rather than the problems. Sorkin's master plan provides a broad, planted path leading from the existing elevated train station to the beach, a stretch of "Copacabana," miniature wetlands, and "green-machine" technology that converts black water to gray.

Recalling earlier new towns

Other members of the City College team, which included architects from SHoP and SYSTEMarchitects, devised a proposal for one sector of the site inspired by "the play between private and communal spaces" in the early-20th-century "new town" community of Sunnyside Gardens, in Queens, and Sea Ranch, in California. But they employed a 21st-century kit of building parts and stepped the houses down as they move closer to the beach.

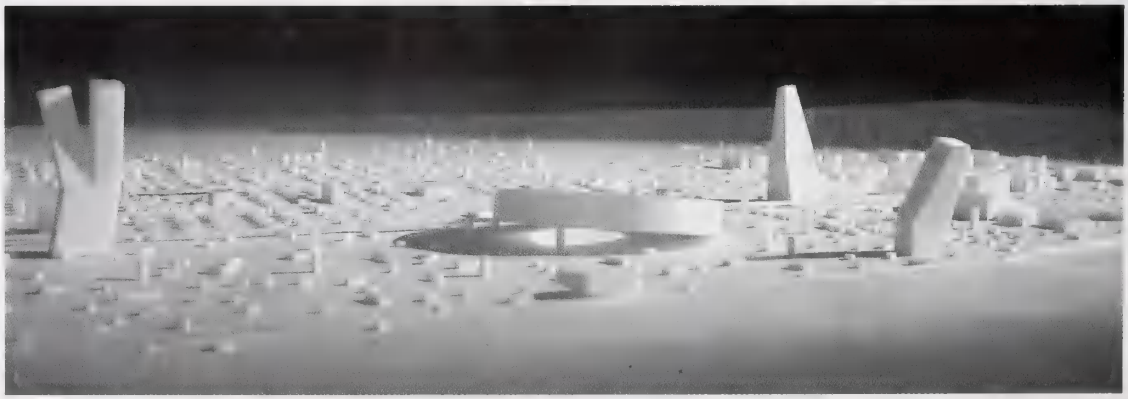
Although not initially invited by the Architectural League, a team from Cooper Union and Pratt Institute—led by Diane Lewis and James Rossant—participated in the exhibition because it had been hired by community leaders in Arverne to devise a plan for stitching together a group of existing institutions with new educational and housing facilities. Called "Universe-City," the plan envisions a campus incorporating the 80-year-old Bethel African Methodist Episcopal Church, Public School 183, and the Hammel Houses public housing project, along with a new chapel, a planetarium, a library-math-science center, housing for the elderly, and a landscaped plaza.

The Architectural League exhibition in New York also showed the plans designed by EEK for the developers selected by the city. EEK's scheme envisions a Main Street connecting housing sites with the beach and subway station. Inspired by another successful early-20th-century Queens new town, Forest Hills, EEK designed a commercial core with apartments above stores and three distinct neighborhoods with 2,200 units of different housing types. Forest Hills is actually a better model than Sunnyside, despite the prominent role the latter played in early modern housing literature and the fact that Lewis Mumford lived there. This is because Sunnyside consists solely of housing, whereas Forest Hills is bordered by parks, linked by both the Long Island Railroad and the subway, and has a walkable downtown most American cities would die for. Construction should start on the first EEK houses this summer.

Using HUD funds

The New York City Housing Authority is also planning to pump $225 million of federal money from the HOPE VI housing redevelopment program into the Arverne area. Instead of using the money to tear down its high-rise housing projects (as many cities have done), New York will invest the Housing and Urban Development (HUD) money to connect existing public housing projects (the Arverne and Edgemere Houses) by pedestrian paths to parks, community centers, and a commercial strip designed to resemble the thriving one in Belle Harbor, a prosperous beachside neighborhood on the western end of the Rockaway peninsula.

Getting the right balance between innovation and time-tested ideas is never easy. If some of the faculty architects' schemes seem to come more from their own past work than conditions at the site itself (glass walls in a hurricane zone? pristine boxes in a green scheme?), they at least offer alternatives to the formulaic housing built in New York recently and to the much-touted but tired New Urbanist schemes. *(continued on page 110)*



The plan produced by CASE, a Dutch research group, depicts a kind of moonscape on the dunes.

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Briefly Noted

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In *Mood River*, toothbrushes, trashcans, iMacs, and power saws appear to float and fly; curves, surfaces, and angles seem to tangle; and everyday objects—ones easily found in the kitchen or under your bed—morph into a medley of textures, tones, and colors.

Bringing together more than 2,000 artifacts and icons from the worlds of fashion, sports, technology, and entertainment, this exhibition explores the forms, materials, and objects that create the landscape of our modern-day reality.

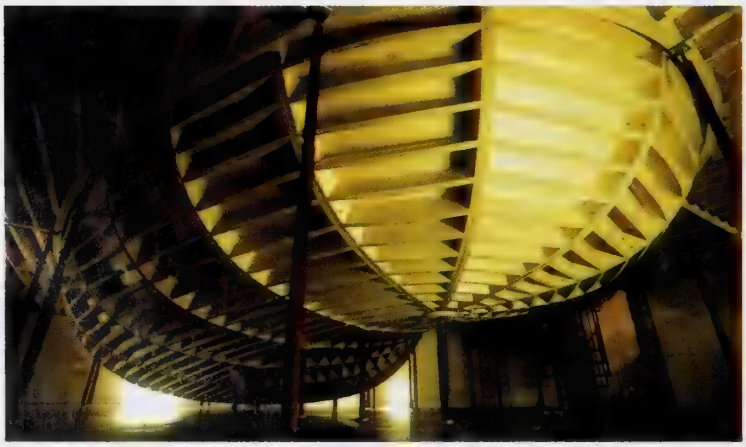
Inspired by *Machine Art*, Philip Johnson's 1934 groundbreaking exhibition at the Museum of Modern Art in New York City, *Mood River* features more than 200 artists and designers from 12 countries. Recent works by Hussein Chalayan, Greg Lynn, Issey Miyake, Philippe Starck, and Karim Rashid, scattered throughout the exhibition, reveal unexpected connections between the different design media. Also threaded throughout the show are works by artists such as Frank Stella, John Chamberlain, Rachael Neubauer, and Tony Cragg.

In many ways, the exhibition's provocative juxtaposition of objects, materials, and forms is reminiscent of the rhythm and structure of poetry. Subtle connections between seemingly unrelated objects elicit a range of emotions and arouse a deep respect for the power of design to pique our senses. The exhibition is organized into four major sections, or "streams": bliss, rage, ecstasy, and trauma. Moving through the show, visitors find a number of remarkable displays, such as skateboards twisting to the ceiling, spoons dangling like suspended rain, and a waterfall of headlights spilling to the floor.

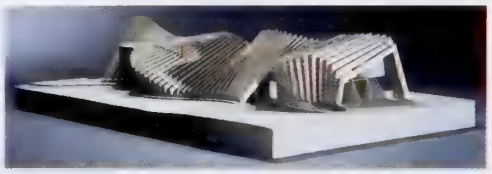
Mood River also features a handful of special installations, appropriately called "waves," which change partway through the exhibition's four-month run. The first of these waves featured a skate bowl, designed by SIMPARCH, where local skateboarders could show off their moves, and *Design Afoot*, an exhibit that delved into the recent athletic-shoe craze. The second wave, which opened on April 24, brought in *Paint-Ball Robot*, an interactive computer that visitors can manipulate to throw paint balls at a canvas; and a special installation of work by fashion designer Hussein Chalayan.

Approaching its third month, *Mood River* has been extended through June 30. With a host of programs and events planned for the spring, visitors still have a chance to dive in before the river dries up. *Christina V. Rogers*

Bring your board and you can skate in *Free Basin* by SIMPARCH.



US Design 1975–2000, *curated by R. Craig Miler, at the Denver Art Museum, Denver (through May 26, 2002).*



Bart Prince's Hight House is included in *US Design*.

US Design may not have the seductive power of biomorphic curves and floating displays, but it does provide an in-depth look at the history behind such design challenges as in-line skates and iMac computers.

In this retrospective, curator R. Craig Miller and his team of design scholars trace the cultural and theoretical issues that have shaped design in the past quarter-century to offer us a critical look at the evolution of the field.

Examining different facets of late-20th-century design, the exhibition attempts to draw a number of underlying connections between architecture, graphics, and industrial design. Here images of a stealth bomber coexist peacefully with the ubiquitous Greek-motif take-out coffee cups and advanced-performance Rollerblades as visitors move through the various trends and movements of the period.

The exhibition is arranged according to four major concepts that delve into various issues concerning Modernism, Postmodernism, and the emergence of technology and digital media.

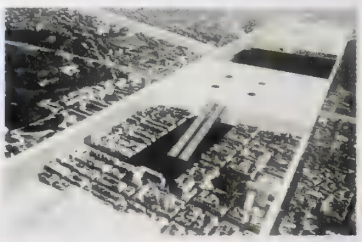
Key designers also play a role here, and visitors will not be surprised to encounter the work of Robert Venturi, Michael Graves, and Frank Gehry more than once. In fact, the dominance of this trio of architects is a bit of a disappointment in light of the diversity of graphic and industrial designers whose eclectic work is one of the strongest points of the exhibition. *CVR*

Perfect Acts, *curated by Jeffrey Kipnis, at the San Francisco Museum of Modern Art, San Francisco (through June 30, 2002).*

It seems that architects travel in groups of five. First there were the Whites, then the Grays. Now, with the opening of the traveling exhibition *Perfect Acts* there is yet another fivesome on the scene: Peter Eisenman, Rem Koolhaas, Daniel Libeskind, Thom Mayne, and Bernard Tschumi.

On display are 130 examples of two-dimensional work created by these architects between the years 1977 and 1987 when a slowing of the economy curtailed new construction. During this time, there was an eruption of intellectual discourse and critical architectural thought. The title, *Perfect Acts*, refers to the freedom these architects had to expand their ideas and explore them on paper without the limitations of external constraints.

Each set of drawings in the exhibition examines key issues at the time, from urban fragmentation to questions of time and language. Among the many projects are Tschumi's narrative series called the *Manhattan Transcripts* and Mayne's ink-and-graphite drawings for a proposed residence for himself, *Sixth Street House*.



***Exodus*, by Koolhaas and Zenghelis.**

Their musings, experiments, and exploration into the nature of architectural representation spawned a new era of visual presentation and elevated architectural drawings to the status of art. Who knows, maybe one day they will even be an inspiration to the next group of five. *CVR* ■

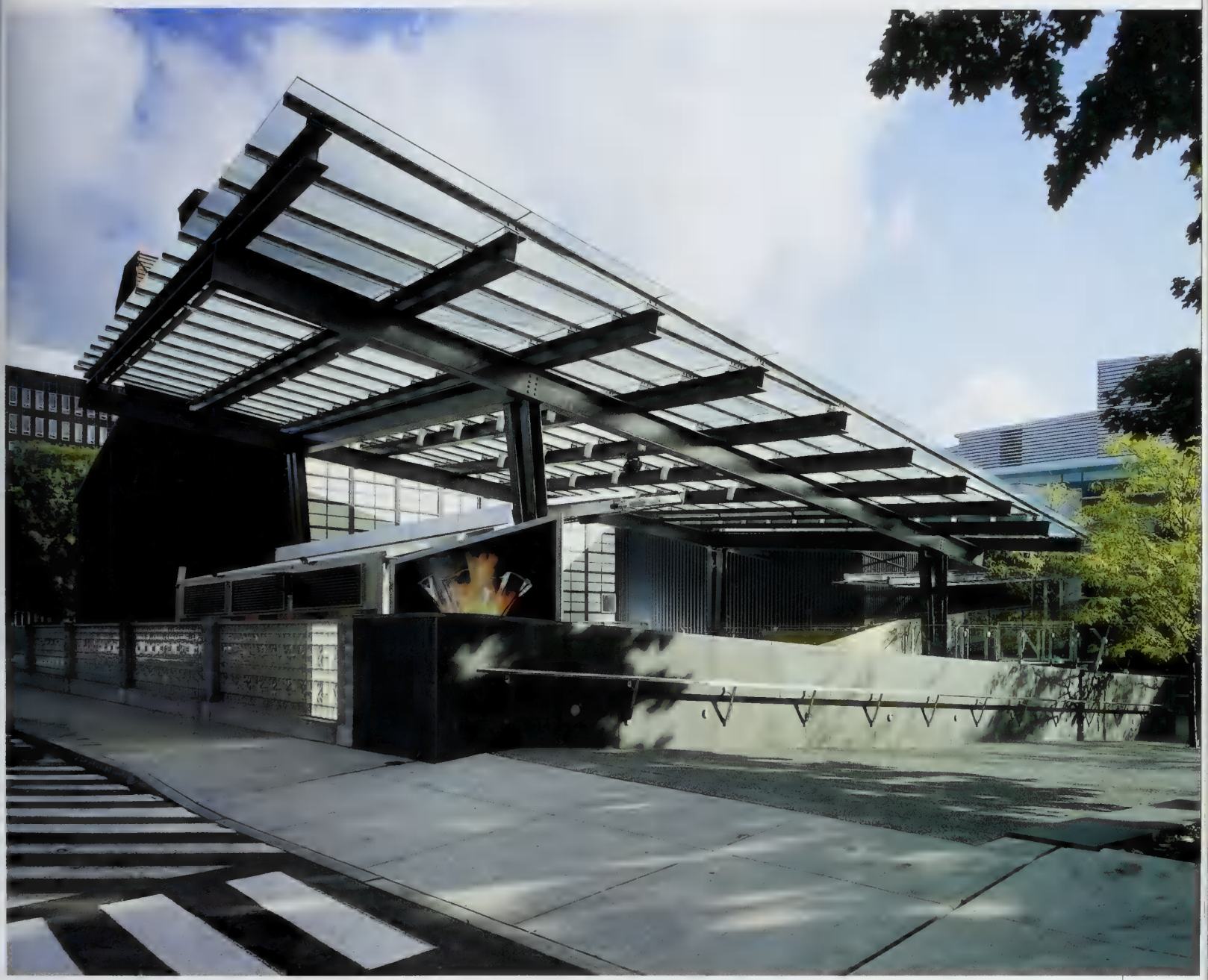
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Snapshot



By Ingrid Whitehead

Glorifying glass at Corning's Summer Stage

The "Crystal City" may sound like a place where superheroes retire or evil sorceresses dwell in icy towers. In reality, it's only slightly more mundane—a nickname for the city of Corning, New York, famous for celebrating the magical material known as glass. In Corning, thanks to such world-renowned institutions as the Corning Museum of Glass and the Steuben factory (both originally designed by Wallace Harrison in the 1950s), you can explore the history of glass, as well as watch master glassblowers transform molten glass into intricate shapes and functional vessels. With an expansion and redesign by Smith-Miller + Hawkinson Architects that won a Business Week/Architectural Record Award [RECORD, October 2001, page 112], the Corning Museum has helped to make Corning the third most visited city in New York. Part of that popularity is due to a recent addition to the museum's campus, the finely crafted Summer Stage, by Ingalil Wahlroos and Flavio Stigliano, built primarily to house the Hot Glass Road Show, the world's first mobile glassblowing unit.

Wahlroos and Stigliano were both members of the Smith-Miller + Hawkinson's team that redesigned the

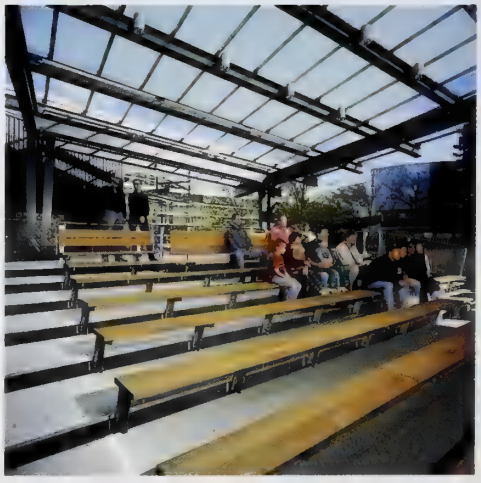


The glass roof was designed with a system of layered glass panels with fully unframed edges (left and previous page). It appears as a dual plane that has slid free from the supporting steel structure beneath it. A ramp descends to the seating area (below), which is raised above the courtyard. This space has the effect of an outdoor room with surprising intimacy.

museum—Wahlroos as project architect and Stigliano as a project designer. Wahlroos had established such a good relationship with the client that when a new, 150-seat stage was needed to accommodate the crowds interested in a close-up view of glassblowing, she was their first choice as architect. It also didn't hurt that she had moved to Corning and was in the process of developing a course, to be taught at Cornell University, called "The Architecture of Glass." Logically, she asked Stigliano to come on board.

With all the properties of the material in play—its reflectiveness, transparency, lightness—the project became a study of glass to shelter a place where glass is studied. The roof is constructed of two glass panels tilted diagonally and in opposition to each other. It is higher on the west side to accommodate the mobile stage, one of the features of the Hot Glass Road Show. When not in Corning, the show travels across the country to educate people about glassblowing. It houses a 300-pound glass-melting furnace, two glory holes, an iron warmer, and an annealer. The entire unit weighs 35,000 pounds, and when docked at the Summer Stage, its mobile stage nestles comfortably between the steel columns of the large glass roof.

"The Summer Stage was my dream project," says Wahlroos, acknowledging the joy of a small project where client, architect, material, and design were all in harmony. The magic of the Crystal City at work? ■



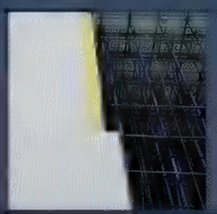
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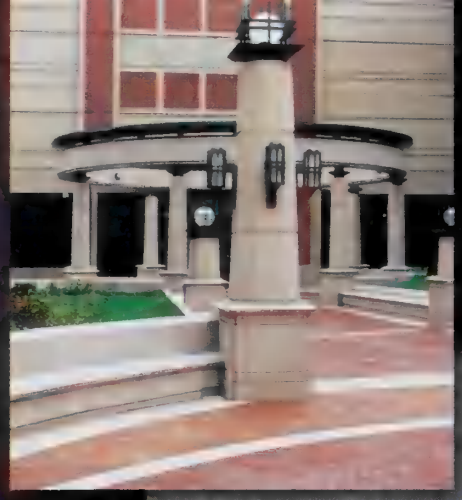
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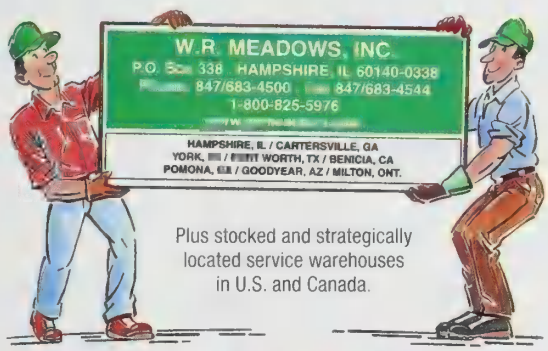
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American Institute of Architects 2002 Honor Awards

Architecture p. 122

Interiors p. 142

Urban Design p. 154

25-Year Award p. 158

Firm Award p. 162

Gold Medal p. 171

The only constant among this year's winners of the AIA Honor Awards for Architecture, Interiors, and Urban Design is, in fact, inconsistency—in location, building size, renovation versus new construction, firm type and size, and the variety of building types and uses. These projects are all offspring of the opulence of recent years, when the economics of our country was not only sound but inflated and overconfident. Interestingly, in spite of our current sluggish economy, with only promises of recovery, the design and construction industry has remained more or less stable—a comforting fact, given the calamity and subsequent uncertainty that shook our nation on 9/11. It is a point of optimism that buildings, which seek to embellish our world, have continued to emerge, while the larger historical context of war and terrorism attempts to destroy it. Concern about architecture has rarely been so prevalent in America, with thoughts of skyscrapers, national security, and what constitutes the comforts of home prominent in people's minds.

On the following pages we feature 18 winners in architecture, eight in interiors, and four in urban design, chosen from a total of 460 submissions received by the AIA. A healthy mix of architects, academics, planners, and government officials, from all corners of the U.S., served as jurors. They marked a high regard for context in the design responses, as well as a noticeable exploration of the use of glass, light, and water, often in concert with landscape architecture and the graphic arts. Intertwined among the sophisticated computer graphics displayed in the awards binders were many beautiful hand drawings that made the architecture more poignant and tangible. While the jury was very pleased with the work being judged, there were few examples where sustainable design or other social imperatives were driving forces. Accompanying quotes, taken from the jury's deliberations, are contained in these pages and shed light on what makes this work exceptional. Jane F. Kolleeny

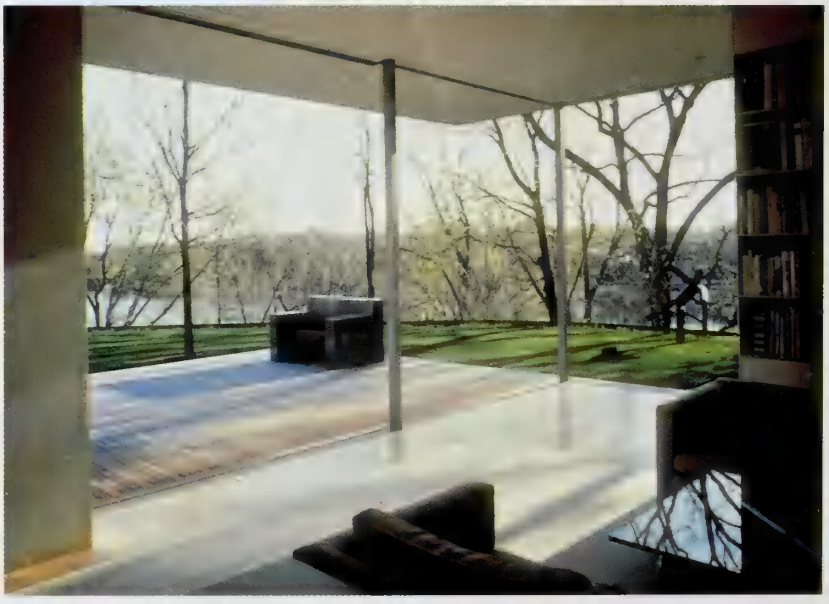
ARCHITECTURE

The diversity of project types among the winners of the 2002 AIA Honor Awards for Architecture is mind-boggling—it includes an equipment shed, a burger joint, a courthouse, a school for children, a restored barn, an estuarine habitat, and a parking garage/chilled water plant. Who could ever have imagined such variance? Equally striking is the location of the winning projects: While all are in the U.S., they spread from east to west, north to south. Then, too, the architects themselves are broadly represented: old-guard firms, the newly established, large mainline offices, and tiny practices. The differences in their work is vast, but the winning designs are all bound together with the thread of excellence.



1





1. The Dayton House
Minneapolis
Architect: *Vincent James Associates*

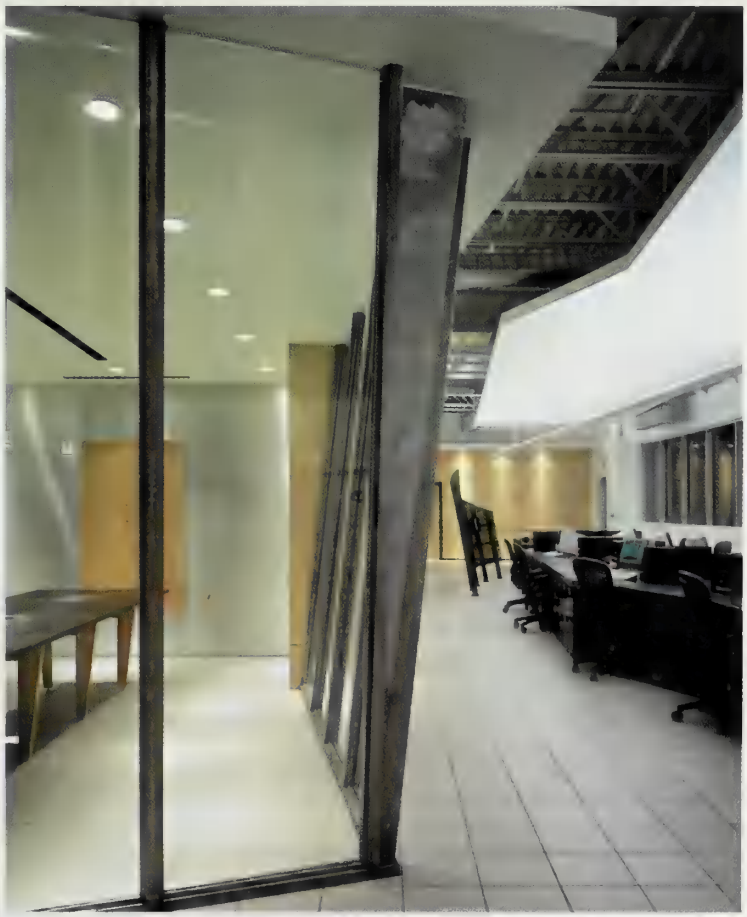
"While abstract in nature, the spaces seem calm, serene, and intimate, an ideal house for the clients, who are in their seventies."

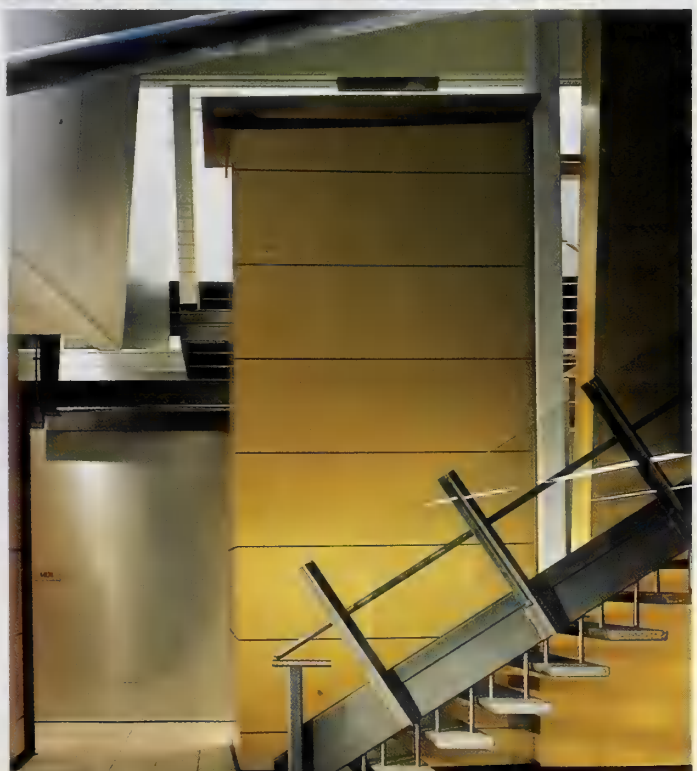
2. Temples of Industry
Omaha
Architect: *Randy Brown Architects*

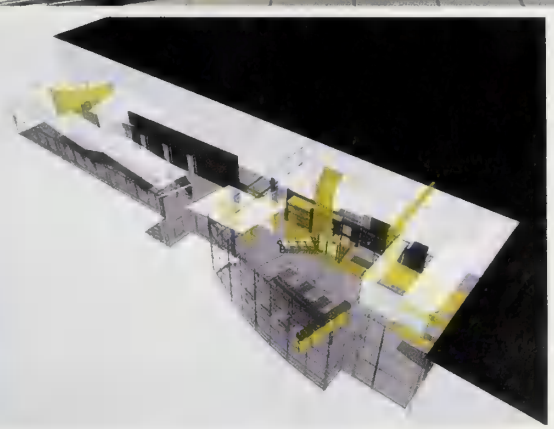
"The design elevates the quality of the workplace by considering the need for places of rest and for stimulation of the eye and the mind."



2









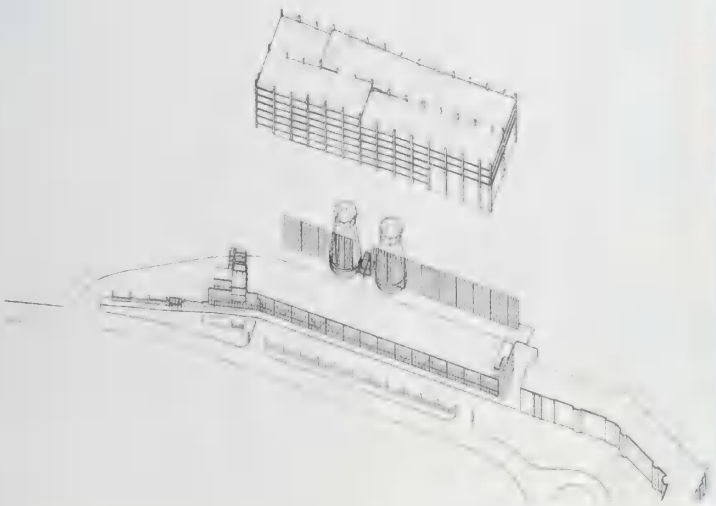
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3. Newton Road Parking and Chilled Water Facility, University of Iowa
Iowa City, Iowa
Architect: *Herbert Lewis Kruse Blunck Architecture*

"Much care has been given to the massing, material selection, and detailing of this structure to elongate, lighten, segment, and assemble itself in inventive ways."



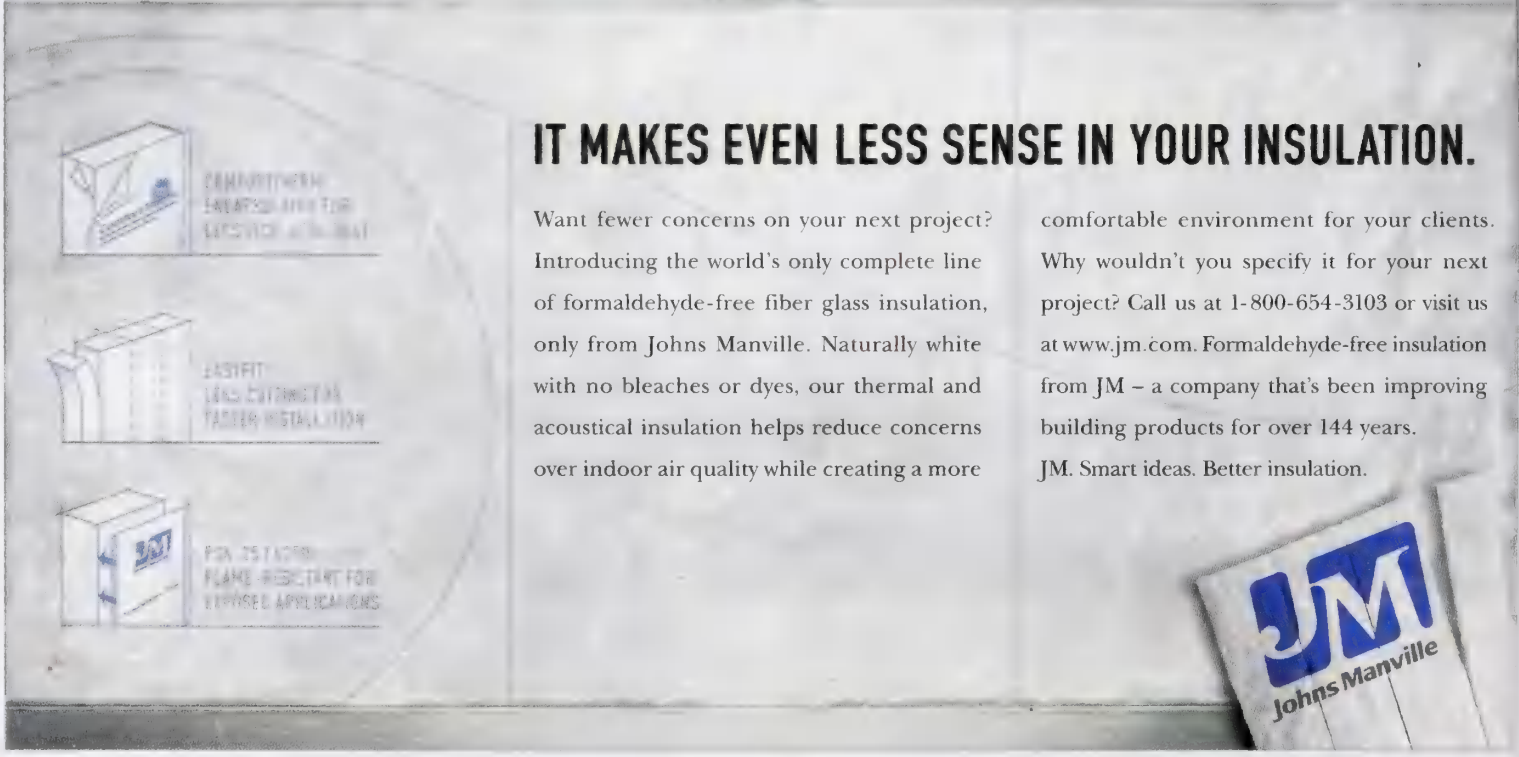
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4. Barn Renovation and Lath House Addition
Philadelphia
Architect: *James Dart, AIA*

"An ingenious addition to an historic barn that creates interest by contrasting the assembled nature of the new with the monolithic quality of the old."

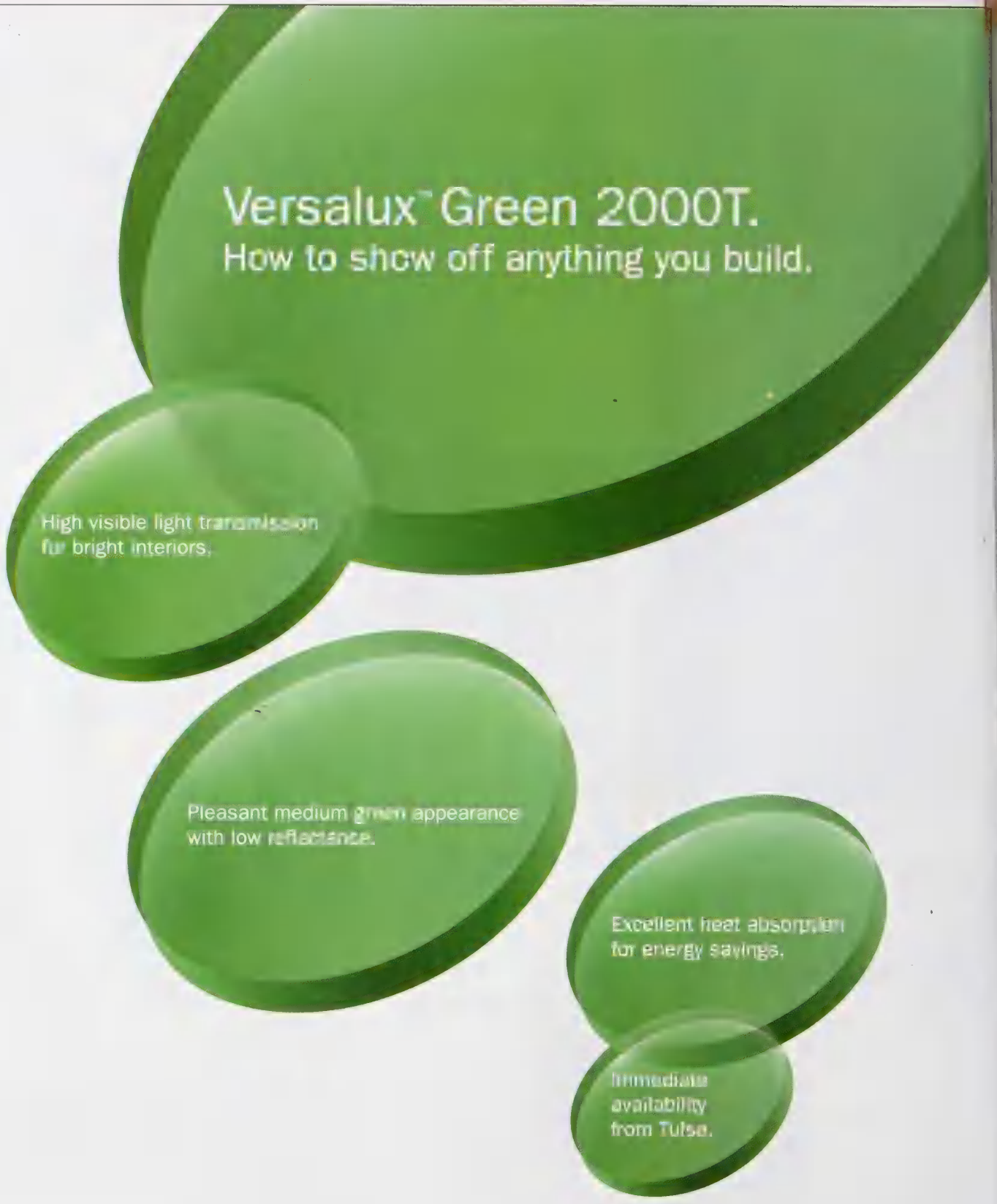






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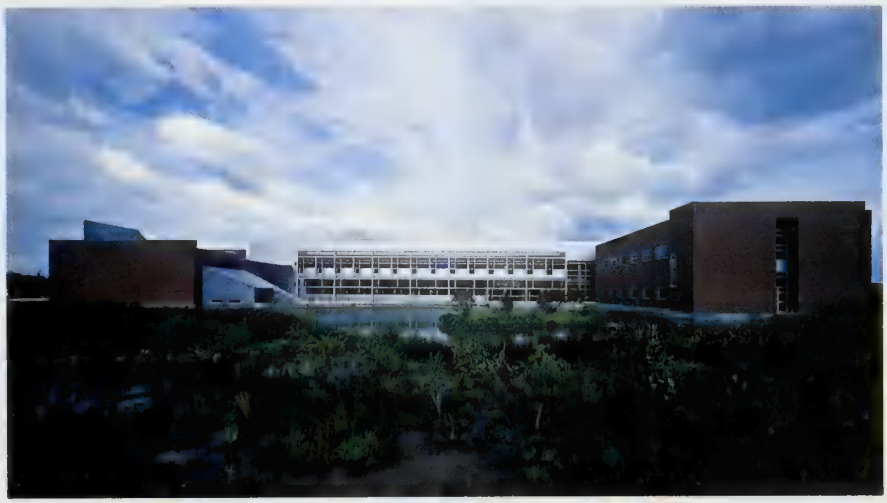
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5. Estuarine Habitats and Coastal Fisheries Center
Lafayette, La.
Architect: *Guidry Beazley Ostteen/Eskew Filson Architects*

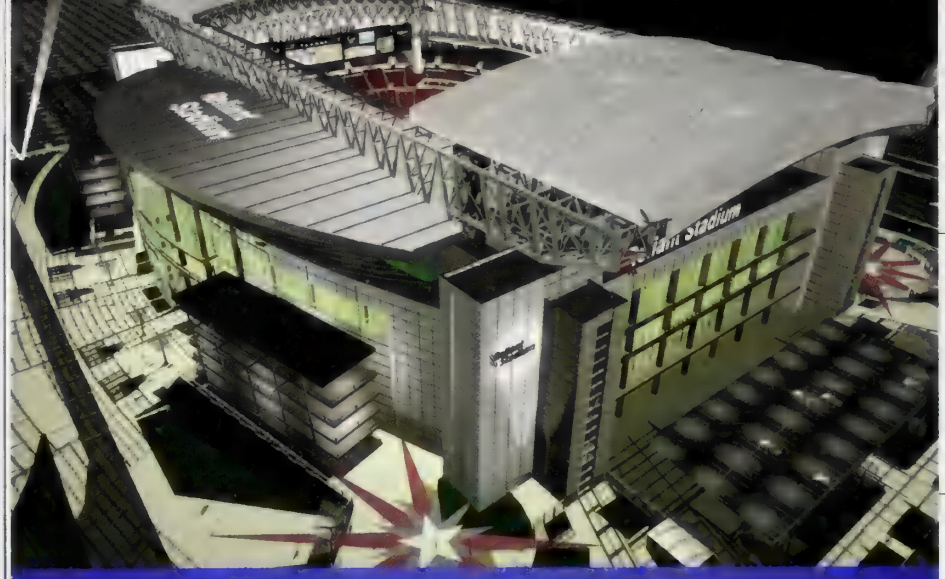
"A sophisticated integration of sustainable design measures in daylighting, sun shading, and energy conservation that meets its educational mission in an innovative way."



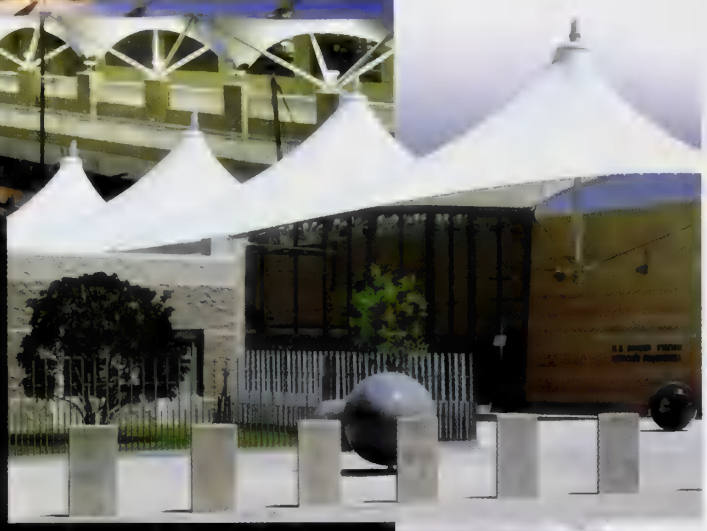
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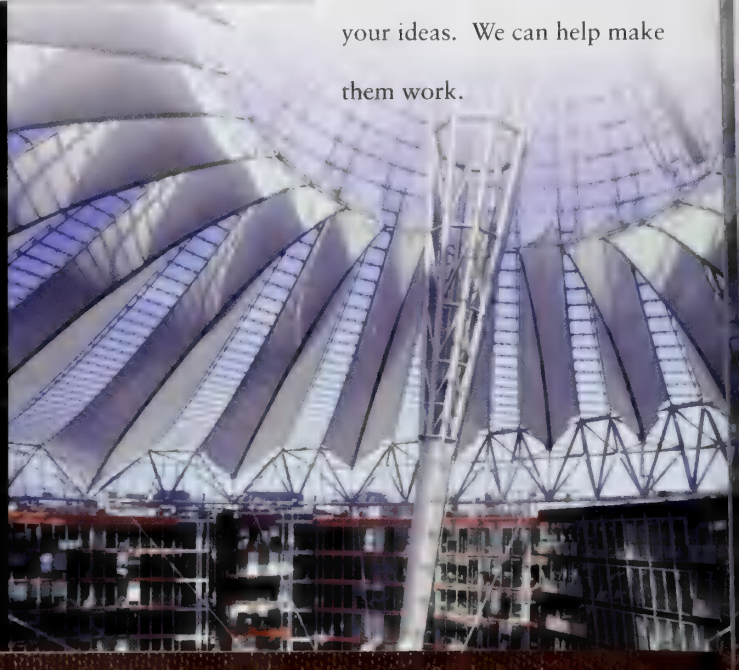


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6. New Equipment Shed at Straitsview Farm
San Juan Island, Wash.
Architect: *Charles Rose Architects*
[RECORD, June 1998, page 103]

"An essay on the use and joinery of wood ... both simple and sophisticated, it creates a tension between low and high art."

7. IN-N-OUT Burger Restaurant
Los Angeles
Architect: *Kanner Architects*

"Generated the most debate over the importance of contextualism, materiality, and architectural language ... achieves a memorable image and is beautifully sculpted, painted, and detailed."



6



7



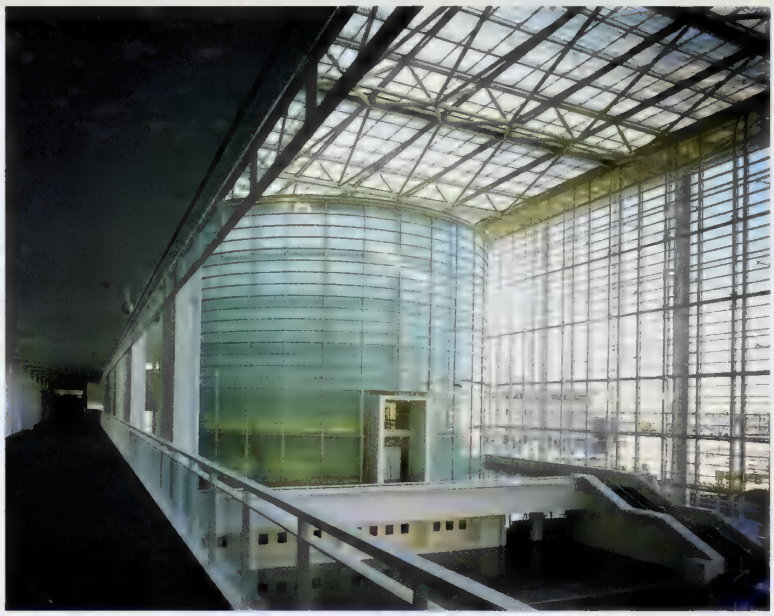


8. Sandra Day O'Connor United States Courthouse
Phoenix
Architect: *Richard Meier & Partners, Architects; Langdon Wilson*
[RECORD, March 2001, page 185]

"The genius of the plan is in the multitude of separate circulation systems in an environment of connected open spaces."

9. Frederick Phineas and Sandra Priest Rose Center for Earth and Space, American Museum of Natural History
New York City
Architect: *Polshek Partnership Architects*
[RECORD, August 2000, page 98]

"The building offers a range of environments—cave-like to celestial. The power of the sphere-in-a-cube idea makes the space immediately comprehensible."



8



9



10. Sony Center
Berlin, Germany
Architect: *Helmut Jahn*
[RECORD, November 2000, page 126]

"Inventive public space, canopied and protected by a celebratory glass tent ... the great diversity of spaces mirrors the multiplicity of uses."

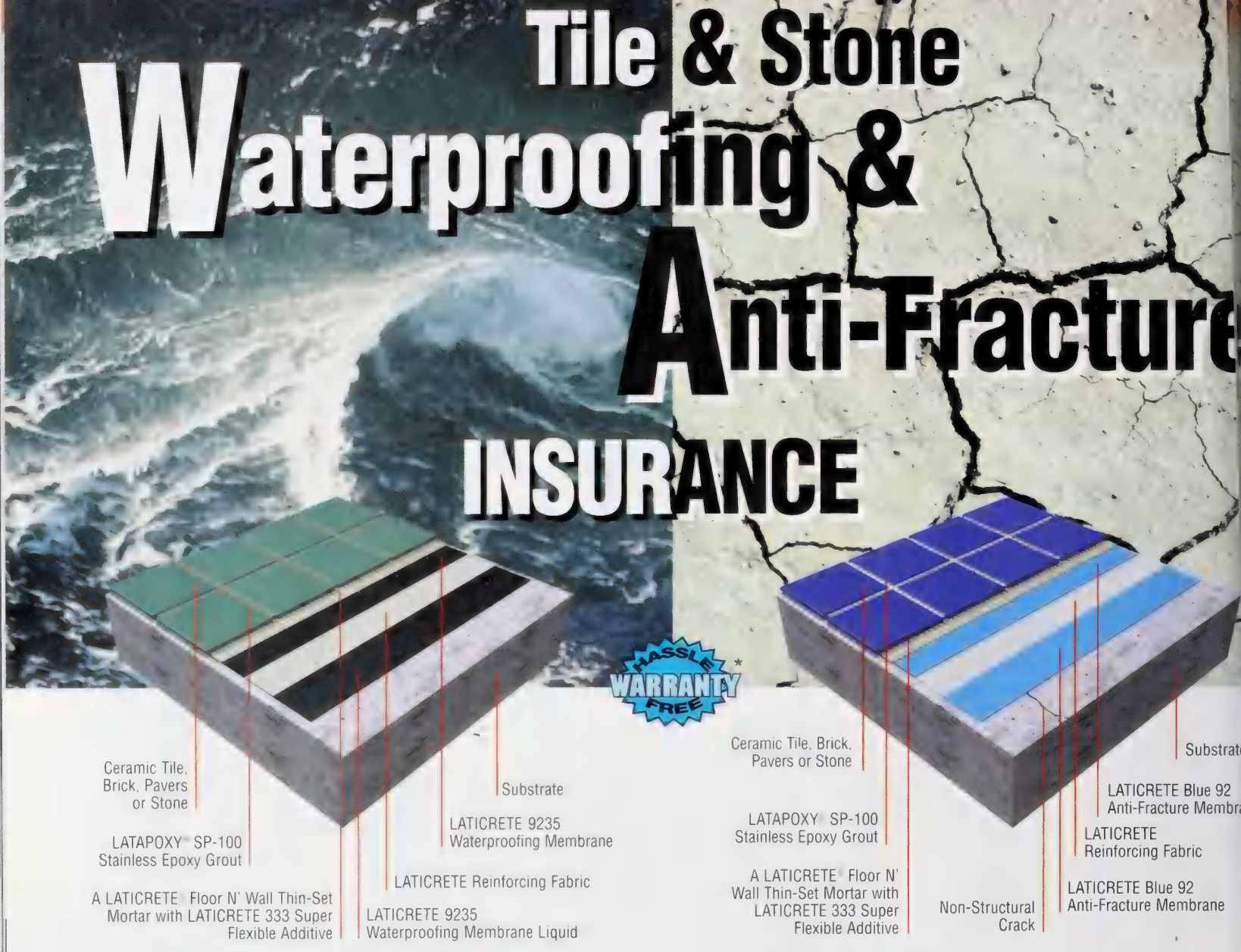




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11. Little Village Academy
Chicago
Architect: *Ross Barney + Jankowski*
[RECORD, October 1997, page 105]

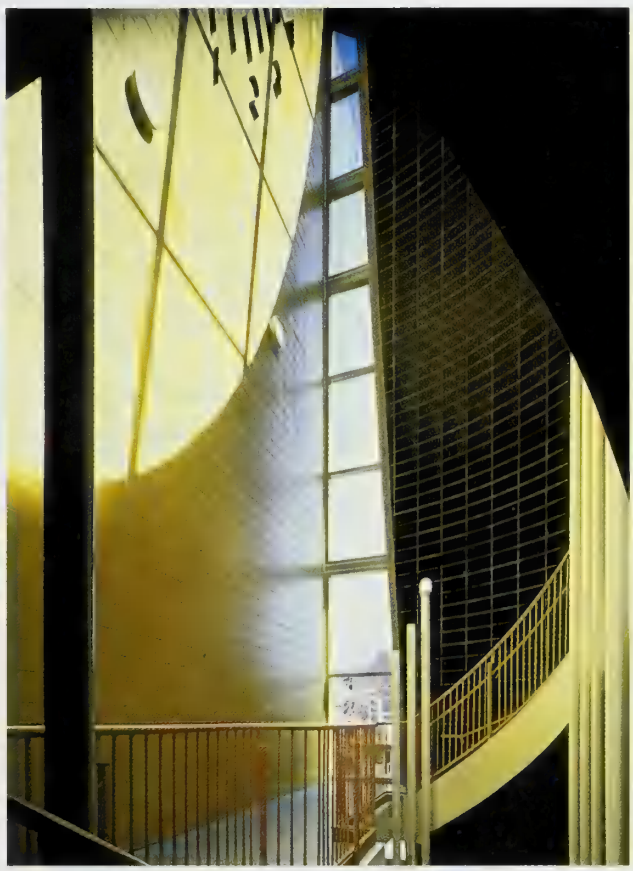
12. Meredith Corporate Expansion and Interiors
Des Moines
Architect: *Herbert Lewis Kruse Blunck Architecture*
[RECORD, May 2001, page 152]

"Changing floor patterns, little windows for the kids, the sundial at the main stair—all things to teach, delight, and enrich the space."

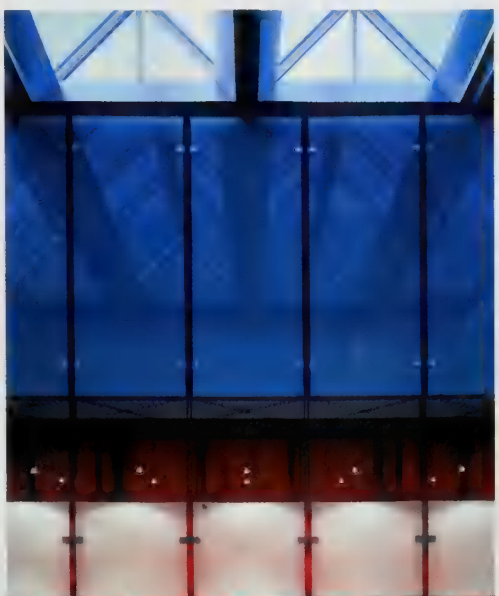
"The interaction between site and building, existing and new, large and small, landscape and structure, combine to assemble a convincing, orchestrated, total design."

11



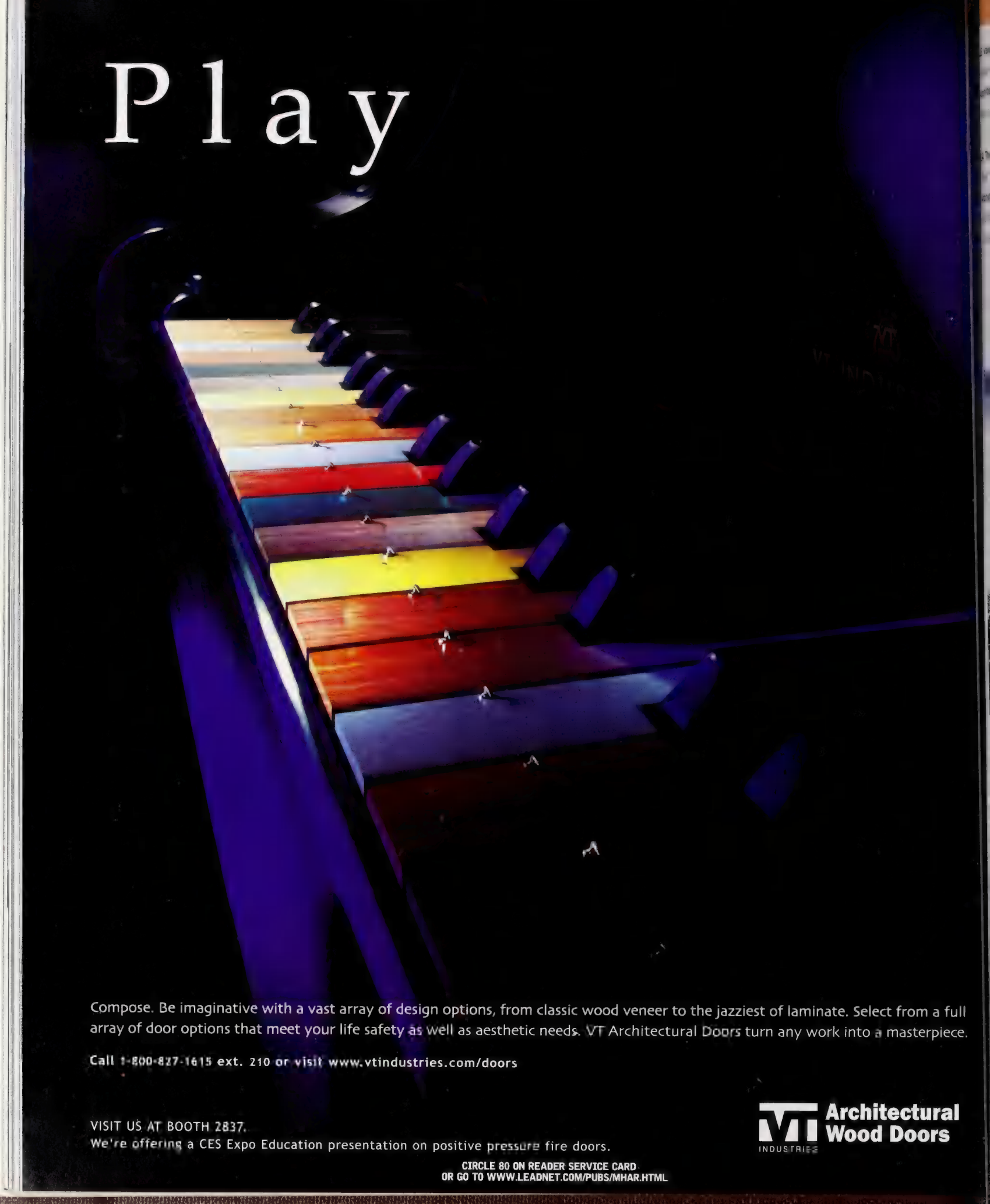


12





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13. Valeo Technical Center
Auburn Hills, Mich.
Architect: *Davis Brody Bond*
[RECORD, May 1998, page 214]

"The column grid and envelope delineate an architectural boundary in a vast open space."

14. The New 42nd Street Studios
New York City
Architect: *Platt Byard Dovell Architects*
[RECORD, November 2000, page 196]

"The changing light makes the building an interpretive art object, depicting the kinetic energy of dancers' movements."

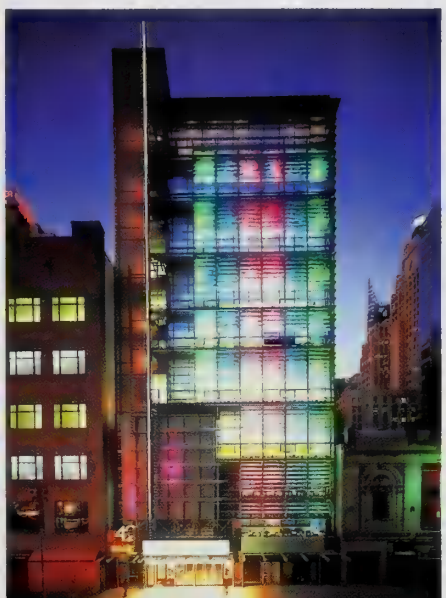


13





14



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Pala Casino
Reservation: Pala, CA
Owner: Pala Band of Mission Indians
Architect: Klai Juba Architects
General Contractor: DPR Construction
Roofing Contractor: Ehmcke Sheet Metal Corp.
Profile: Snap-On Standing Seam
Color: Copper Penny Metallic

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15. Rauner Special Collections Library in Webster Hall, Dartmouth College
Hanover, N.H.
Architect: *Venturi, Scott Brown and Associates*
[RECORD, October 2000, page 158]

"Environmental requirements were met by sensitively inserting this architectural cabinet for books within the historic space."

16. Rachofsky House
Dallas
Architect: *Richard Meier & Partners, Architects*

"Sophisticated relationships—including site to building, house to pool, solid to void—reveal a depth of understanding about human perception of space, distance, and boundary."

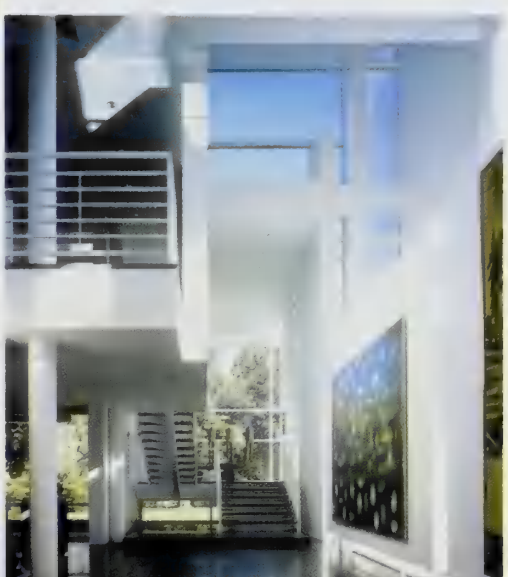




16

15





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17. New International Terminal, San Francisco International Airport
San Francisco
Architect: *Skidmore, Owings & Merrill; Del Campo & Maru; Michael Willis Architects*

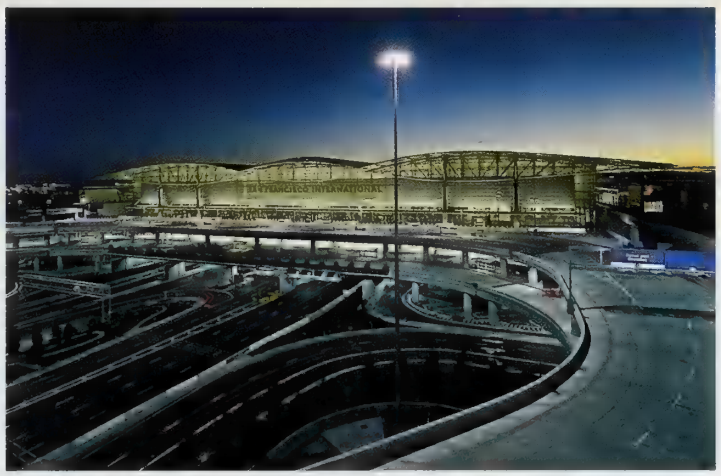
"A clear idea of form and space with basic elements of light. A unique structural roof that looks like dragonfly wings and alludes to flight."

18. Maple Valley Library
Maple Valley, Wash.
Architect: *Cutler-Anderson Architects; Johnston Architects*

"Clearly a community building, the library's open and easily understood organization and circulation constantly unfolds with visual and tactile delight."

17





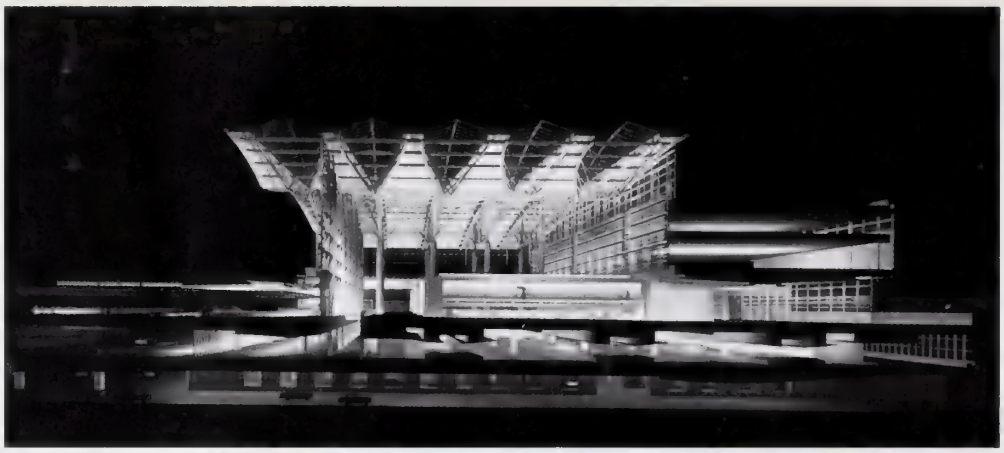
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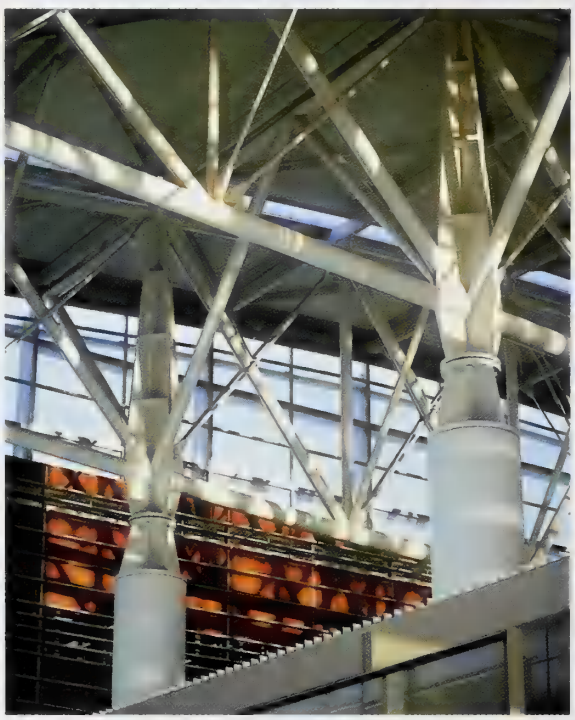


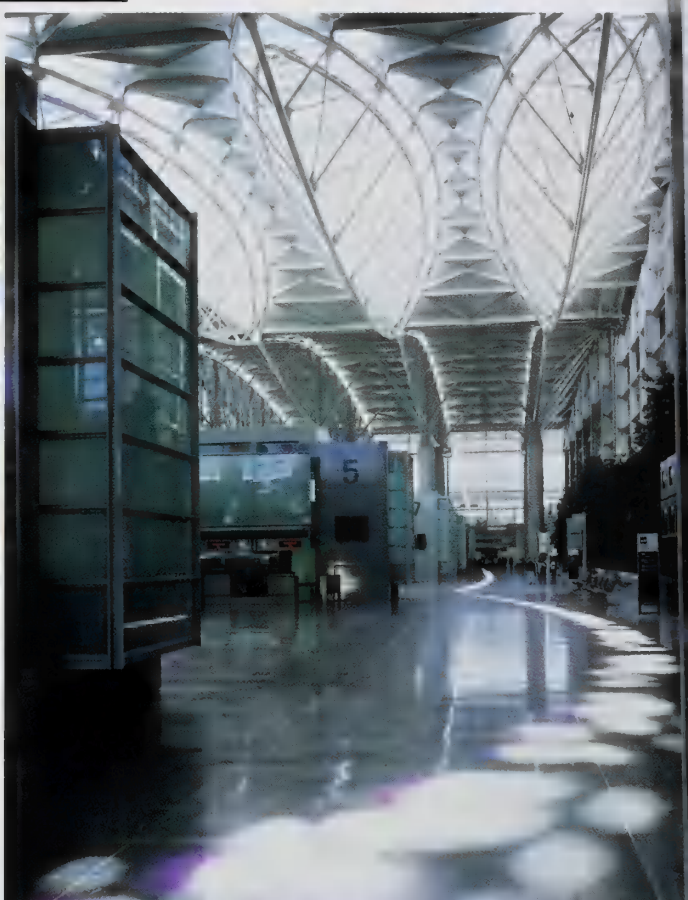
INTERIORS

Should it come as a surprise to us that almost half of the winners of the AIA Honor Award for Interior Design (and about the same percent of those who won for architecture, by the way) have been previously published in this magazine? We were both amazed and reassured to discover this fact. While the perception of beauty is said to be in the eye of the beholder and therefore subjective, the following 12 projects speak their own language of context, materials, innovation, and color. Each project featured here makes ingenious use of environments to tell a story, and they all craft important spaces that celebrate people.



1





1. New International Terminal, San Francisco International Airport
San Francisco
Architect: *Skidmore, Owings & Merrill; Del Campo & Maru; Michael Willis Architects*

2. Vesper Building
Oklahoma City
Architect: *Elliott + Associates Architects*

"A powerful axial approach, yet calm in its horizontality and restrained in its use of materials and color."

"Takes a banal use and raises it to an artful level—an art piece that functions as a garage; a museum piece in the middle of the city."



2





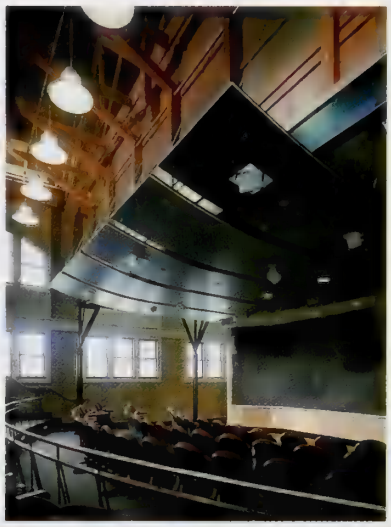
3. Smith-Buonanno Hall
Providence
Architect: *William Kite Architects*

4. XAP Corporation
Culver City, Calif.
Architect: *Pugh + Scarpa*

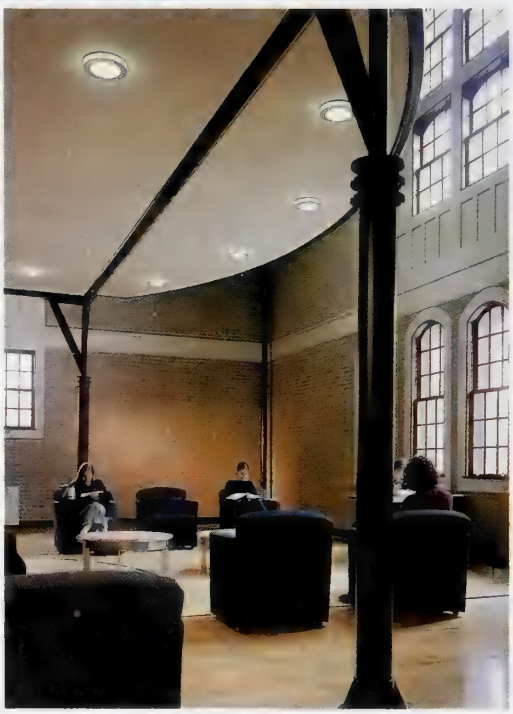
"The architect has used new materials to make a well-crafted, modern interior that complements the character of the original historic building."

"A unique sense of material, craft, and individual form ... the furniture is as successful as the architecture."





3





5. Tsunami
Las Vegas
Architect: *Thom Mayne, AIA, Morphosis*
[RECORD, September 2000, page 107]

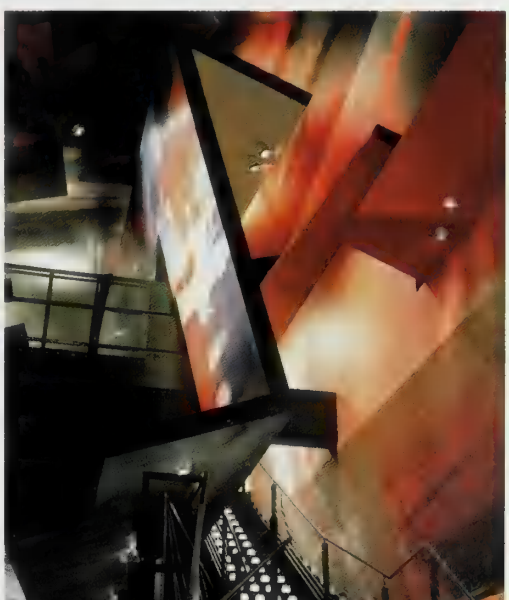
"This project delivers on its name—oriental, enigmatic, sensual feeling, but with lots of action, as if waves were crashing into Vegas."



4



5

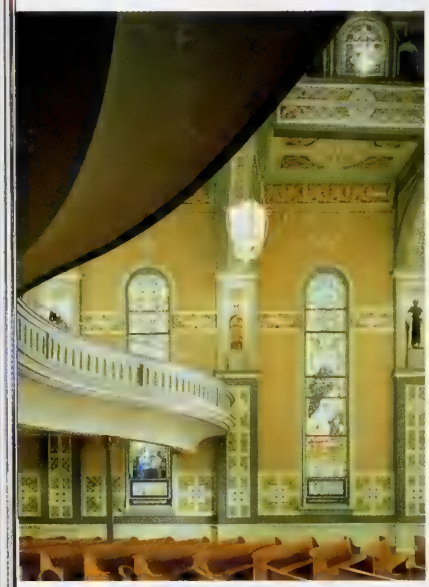


6. Old St. Patrick's Church
Chicago
Architect: *Booth Hansen Associates*
[RECORD, January 2001, page 88]

7. Chicago Tribune Pressroom Renovation
Chicago
Architect: *Perkins & Will; McClier Corporation (associate architect)*

"Impressive use of new technology combines with sensitive understanding of traditions and craft to fortify the spirit and meaning of this historic church."

"The new space is respectful of the former industrial newspaper press, but enough of the original space is removed to allow a subterranean, uncluttered feeling."





6

Chicago Tribune pressroom before renovation.



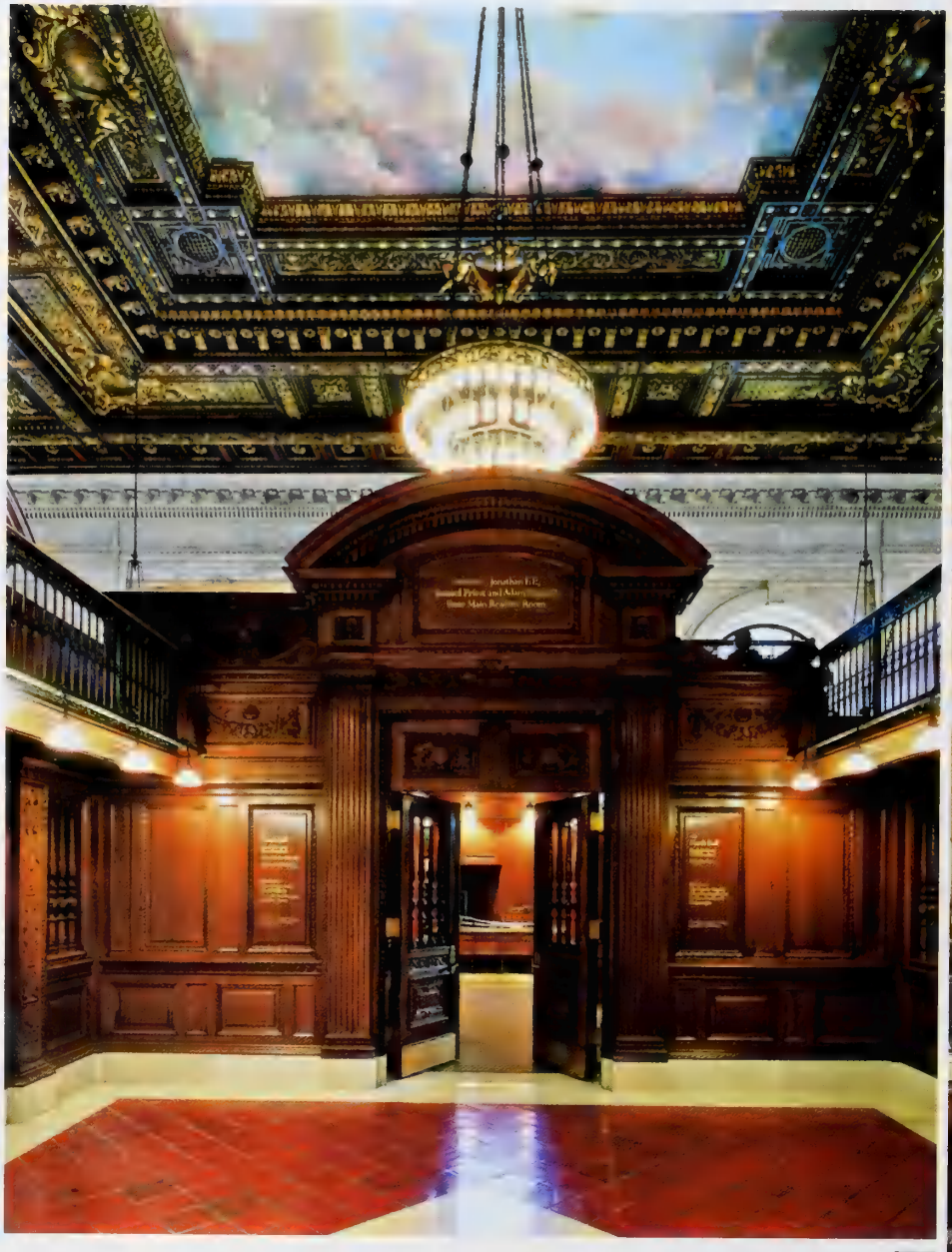
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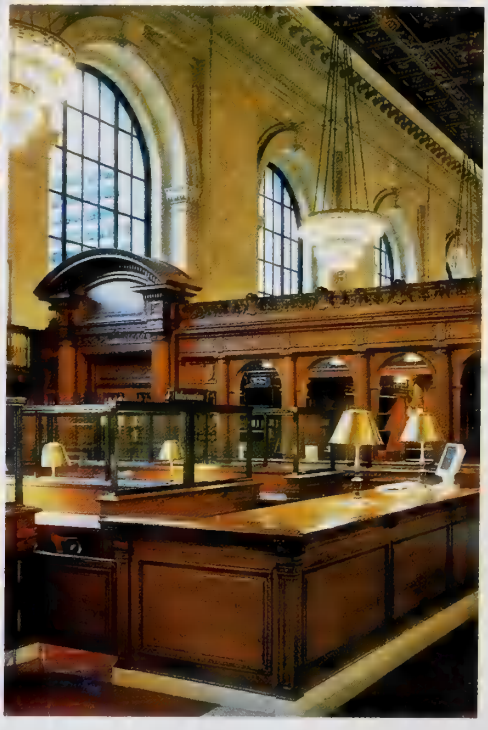

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8. Rose Main Reading Room Restoration, New York Public Library
New York City
Architect: *Davis Brody Bond*

"Polishing and embellishing an old friend to give it new life ... resurrecting preeminent grand spaces in the city of New York."







8

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9. Sticks, Inc.
Des Moines
Architect: *Herbert Lewis Kruse Blunck Architecture*
[RECORD, June 2000, page 130]

10. Qiora Store and Spa
New York City
Architect: *Architecture Research Office*
[RECORD, September 2001, page 114]

"What would ordinarily be a windowless industrial warehouse is transformed into a lively, artistically designed space."

"Cool, minimal, and lush, the space beckons to the passerby, promising a highly sensory experience for those who enter."



9





10

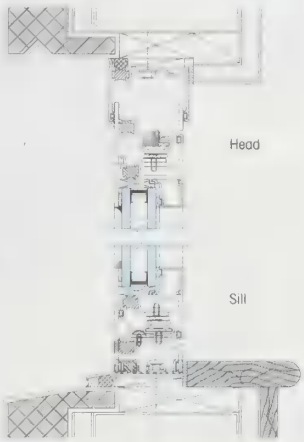


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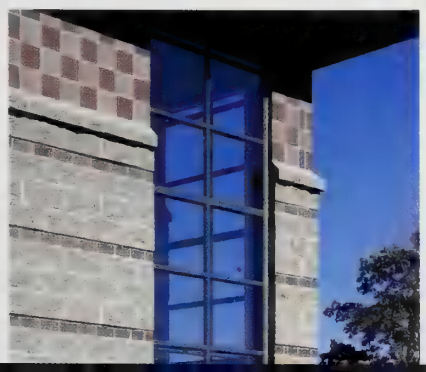


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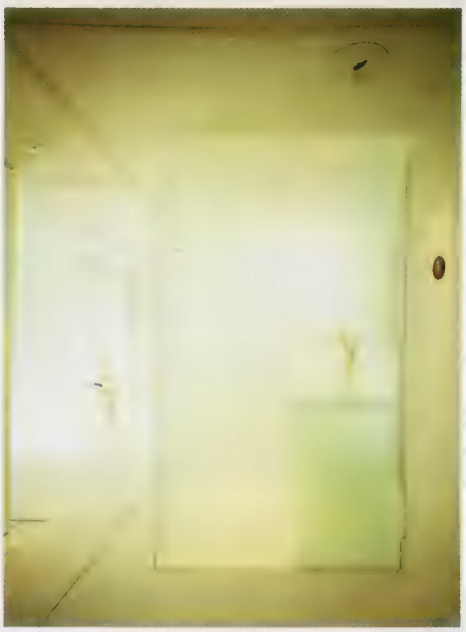
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11. North House
Oklahoma City
Architect: *Elliott + Associates Architects*

12. TBWA/Chiat/Day Advertising
Los Angeles
Architect: *Clive Wilkinson Architects*
[RECORD, August 1999, page 102]

"Thoughtful, controlled interior relies on shadow and light to give the feeling of a three-dimensional, contemplative place."

"By using the principles and language of city planning, the architects have created an intriguing workspace for a creative user."

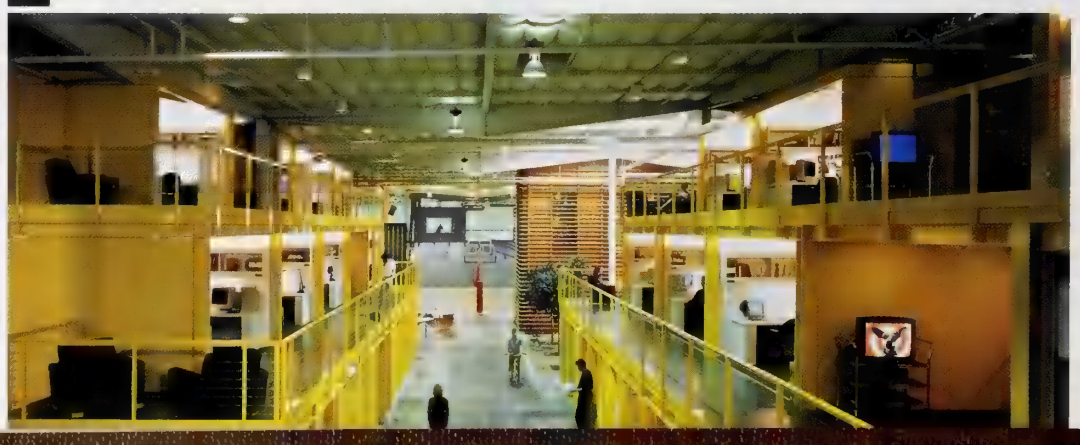


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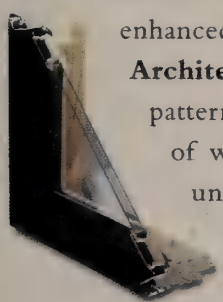


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URBAN DESIGN

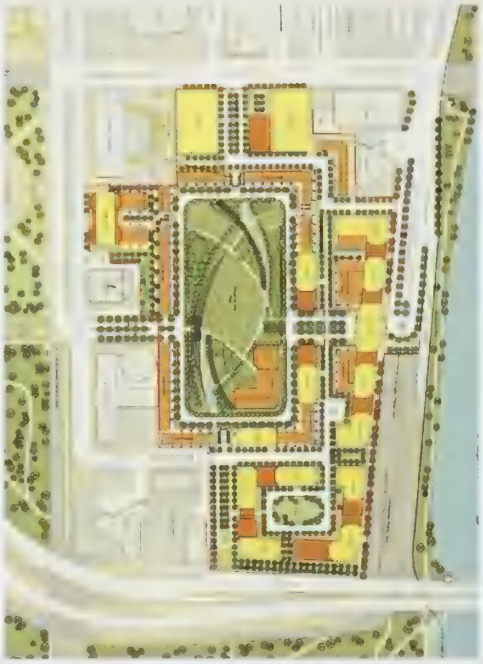
Every good design begins with planning, the unsung hero of architecture, where the contextual logic of design finds a home. Three of these plans pertain to urban areas on the waterfront that emphasize pedestrian life. The fourth outlines strategies for urban sprawl and could be applied to any neighborhood that seeks holistic solutions. Together, this balanced group of exemplary candidates both confirm and applaud the central importance of a sound plan.

1. Lakeshore East Master Plan
Chicago
Architect: *Skidmore, Owings & Merrill*

2. A Vision Plan for Pittsburgh's Riverfronts
Pittsburgh
Architect: *Chan Krieger & Associates; Bohlin Cywinski Jackson, and Urban Instruments (associate architects)*

1





"A deceptively simple plan surrounding a 6-acre rectangular central park is integrated with an ingenious section to connect the city to the river."

2



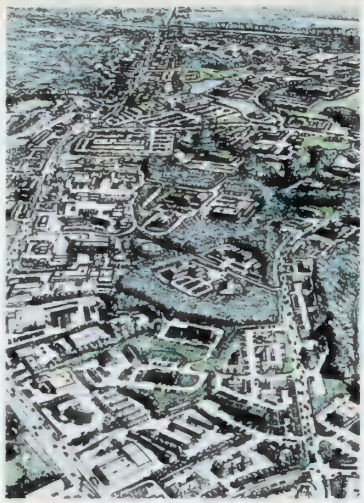
"Three rivers become an identifiable civic space, celebrated both day and night."




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Pattern Choices
Modularity
Ease Of Installation
Security
Privacy
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– Stephen Darrow, NCARB, AIA
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3. The Neighborhood Model: Development Area Initiatives Study
Albemarle County, Va.
Architect: *Torti Gallas and Partners-CHK*

4. Riverwalk Gateway
Chicago
Architect: *Skidmore, Owings & Merrill*





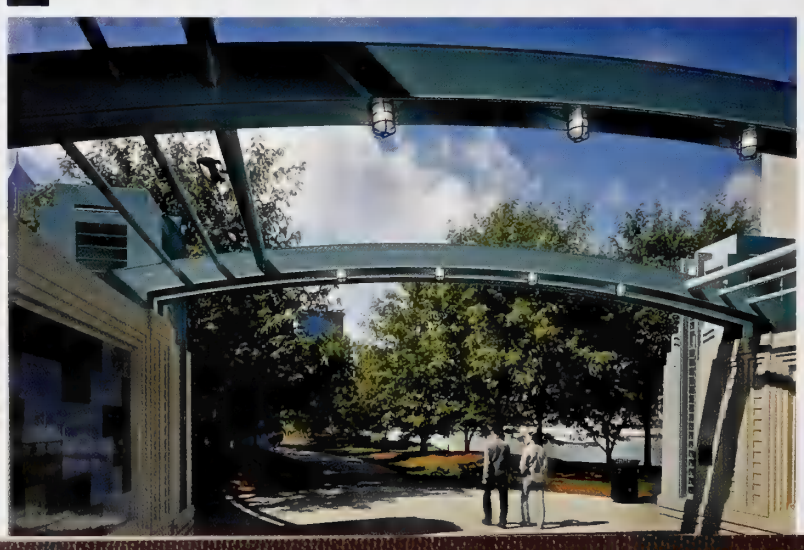
3

"It is not only a plan for property, but a sourcebook of guiding principles on what kind of new development is most in the public interest."



4

"The designers inserted a new, lively canopy structure beneath the existing bridge, creating an attractive portal through a dark and foreboding underpass."



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Architect: Bumgardner - Seattle, WA

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Winners of the 2001 Metal Architecture Magazine/ Metal Construction Association Design Awards (Smooth and Ribbed Wall Panel Categories), published in the August issue.



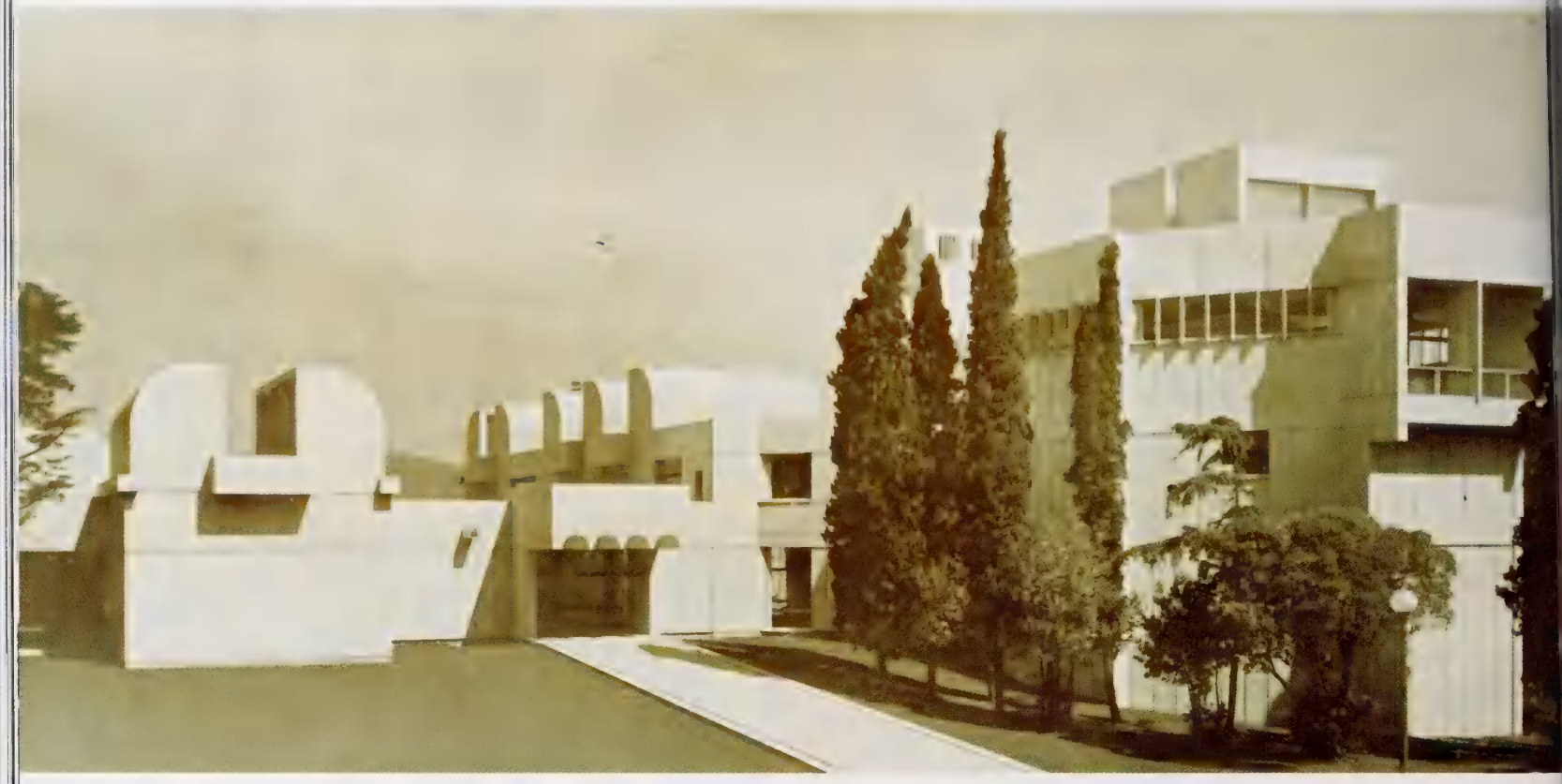
Project: Dore Residence - Hagar Township, MI
Architect: Allegretti Architects, Inc. - St. Joseph, MI

For some free thought-provoking ideas, technical literature and more information on MCA's Metal Wall Panel Council, contact the Metal Construction Association at:

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The Mediterranean marries Modernism in a timeless tribute to Joan Miró



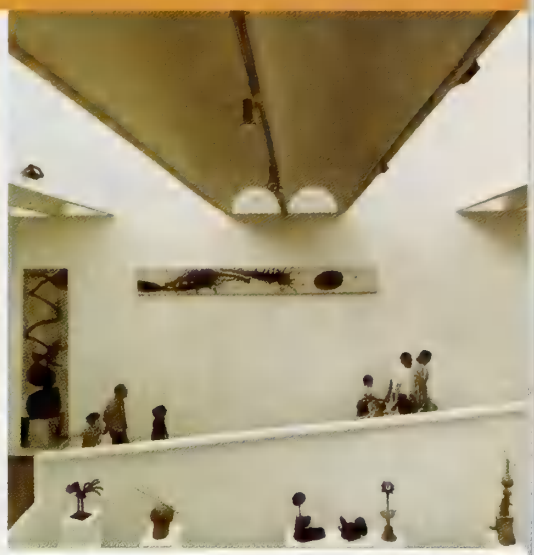
Sometimes friendship can spawn works of enormous beauty. Renowned artist Joan Miró and architect Josep Lluis Sert were native Barcelonans who wove their respective visions together in the Fundació Joan Miró. Opened to the public in 1975, the museum is located in Parc de Montjuic, Barcelona, and its Modernist building blends with the native Catalonian style. In the words of Robert Campbell, FAIA, "Sert's career-long effort was to marry the logic and rigor of the Modern movement with the vernacular architecture of the Mediterranean, which he loved and admired for being so responsive to climate and culture." In addition, it is a project of enormous durability, as evidenced by this award. In their nomination, the Boston Society of Architects hailed it as a "project for the ages."

Rather than a large, undifferentiated hall to be partitioned and lighted for each exhibit, this museum was conceived as a "kit of parts," a variety of proportioned spaces of differing sizes and lighting conditions. Defining the volumes of the complex are small rooms for close-up contemplation, expansive galleries for distant viewing, spaces with high ceilings for tall, vertically displayed art, and an outdoor roof garden and lawn-covered areas for large sculpture.

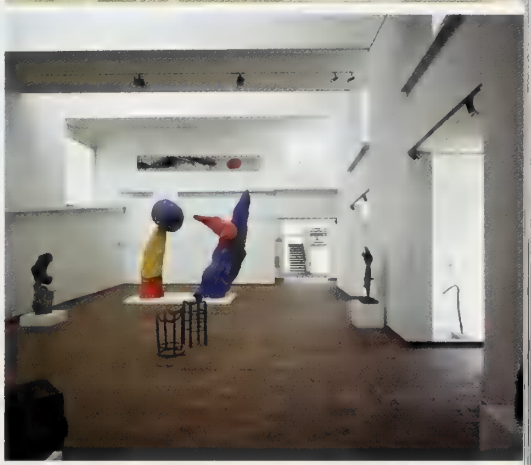
Although additions to the museum in 1988 and 2001 by Jaume Freixa expanded its exhibition and office space, and added a restaurant, it remains in immaculate condition and retains its initial appearance—*Jane F. Kolleeny*









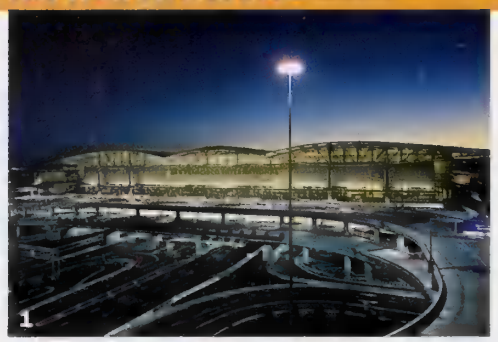
















Winners and Jurors

WINNERS

Architecture (page 122)
The Dayton House: Vincent James Associates; Temples of Industry: Randy Brown Architects; Newton Road Parking and Chilled Water Facility, University of Iowa: Herbert Lewis Kruse Blunck Architecture; Barn Renovation and Lath House Addition: James Dart, AIA; Estuarine Habitats and Coastal Fisheries Center: Guidry Beazley Ostteen/Eskew Filson Architects; New Equipment Shed at Straitsview Farm: Charles Rose Architects; IN-N-OUT Burger Restaurant: Kanner Architects; Sandra Day O'Connor United States Courthouse: Richard Meier & Partners, Architects and Langdon Wilson; Frederick Phineas and Sandra Priest Rose Center for Earth and Space, American Museum of Natural History: Polshek Partnership Architects; Sony Center: Helmut Jahn; Little Village Academy: Ross Barney + Jankowski; Meredith Corporate Expansion and Interiors: Herbert Lewis Kruse Blunck Architecture; Valeo Technical Center: Davis Brody Bond; The New 42nd Street Studios: Platt Byard Dovell Architects; Rauner Special Collections Library in Webster Hall, Dartmouth College: Venturi, Scott Brown and Associates; Rachofsky House: Richard Meier & Partners, Architects; New International Terminal, San Francisco International Airport: Skidmore, Owings & Merrill, Del Campo & Maru, Michael Willis Architects; Maple Valley Library: Cutler-Anderson Architects and Johnson Architects

Interiors (page 142)
New International Terminal, San Francisco International Airport: Skidmore, Owings & Merrill, Del Campo & Maru, Michael Willis Architects; Vesper Building: Elliott + Associates Architects; Smith-Buonanno Hall: William Kite Architects; XAP Corporation: Pugh + Scarpa; Tsunami: Thom Mayne, AIA, Morphosis; Old St. Patrick's Church: Booth Hansen Associates; Chicago Tribune Pressroom Renovation: Perkins & Will and McClier Corporation; Rose Main Reading Room Restoration, New York Public Library: Davis Brody Bond; Sticks, Inc., Herbert Lewis Kruse Blunck Architecture; Qiora Store and Spa: Architecture Research Office; North House: Elliott + Associates Architects; TBWA/Chiat/Day Advertising: Clive Wilkinson Architects

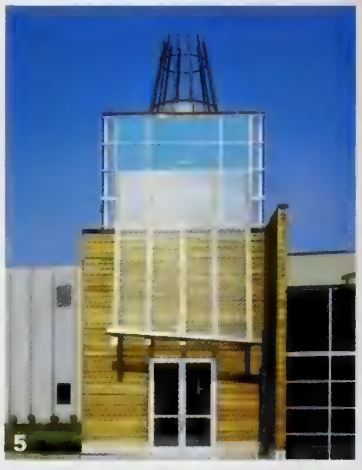
Urban Design (page 154)
Lakeshore East Master Plan: Skidmore, Owings & Merrill; A Vision Plan for Pittsburgh's Riverfronts: Chan Krieger & Associates, Bohlin Cywinski Jackson, Urban Instruments; The Neighborhood Model, Development Area Initiatives Study: Torti Gallas and Partners-CHK; Riverwalk Gateway: Skidmore, Owings & Merrill

25-Year Award (page 158)
Fundació Joan Miró, Barcelona, Spain: Sert, Jackson and Associates

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Gold Medal (page 171)
Tadao Ando, Hon. FAIA





JURORS

Architecture
Bernard J. Cywinski, FAIA (chair), Havertown, Pa.; Thomas H. Beeby, FAIA, Chicago; Nathaniel O. Clark, Assoc. AIA, Baton Rough, La.; E. Eean McNaughton, Jr., FAIA, New Orleans; Scott Merrill, AIA, Vero Beach, Fla.; Rebecca Swanston, AIA, Baltimore; Marilyn Wheaton, Detroit; Isaac Williams, Columbia, Md.

Interiors
Carol Ross Barney, FAIA (chair), Chicago; Michael Gabellini, AIA, New York City; Stephen H. Kanner, FAIA, Los Angeles; Sunam Sorg, FAIA, Washington, D.C.

Regional and Urban Design
Jonathan Barnett, FAIA (chair), Washington, D.C.; David D. Dixon, FAIA, Boston; Barbara E. Wilks, FAIA, Brooklyn, N.Y.; Don C. Miles, FAIA, Seattle; Hunter Morrison, Cleveland

1. New International Terminal, San Francisco International Airport, p. 141, p. 143
2. Rose Main Reading Room Restoration, New York Public Library, p. 148
3. A Vision Plan for Pittsburgh's Riverfronts, p. 154
4. Fundació Joan Miró, p. 158
5. Interface Ray C. Anderson Plant, p. 164

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Thompson, Ventulett, Stainback & Associates garners Firm of the Year Award for excellence in a diverse practice

By Deborah Snoonian, P.E.

You may think you've never been in a building designed by Thompson, Ventulett, Stainback & Associates (TVS). Think again. It's estimated that some 240 million people visit this firm's projects annually. That's *240 million*, the equivalent of 85 percent of the U.S. population. (By contrast, the most popular attraction in the U.S., Walt Disney World's Magic Kingdom in Florida, brings in 15 million visitors a year.) With its diverse portfolio of convention centers, corporate campuses, interiors, sports facilities, and retail complexes, the 2002 AIA Architecture Firm Award winner establishes a benchmark for the sheer omnipresence of its projects in the urban fabric.

But it wasn't just its ubiquity that prompted the AIA to honor TVS this year. "TVS is a firm that understands the value of public space," said Thompson E. Penney, FAIA, senior principal of DLR Group, in his nomination letter. "They understand the importance of creating public spaces that enrich, uplift, and inspire the human spirit … [it's] a firm that touches millions of lives through the gifts they create." Above all, TVS has come to be synonymous with an architecture of citizenship: projects that give presence to the neighborhoods they inhabit, that help cities and their denizens realize their aspirations, and that serve as engines for urban renewal and economic growth.

TOP CONVENTION CENTERS BY TVS

Project Name	City	Completed
Georgia World Congress Center (Phases I, II, IV)	Atlanta, Ga.	1976, 1993, 2002
Miami Beach Convention Center Expansion	Miami Beach, Fla.	1989
Pennsylvania Convention Center	Philadelphia, Pa.	1994
Charlotte Convention Center	Charlotte, N.C.	1995
Orange County Convention/Civic Center	Orlando, Fla.	1996
McCormick Place Expansion	Chicago, Ill.	1997
Midwest Express Center	Milwaukee, Wis.	1998
Henry B. Gonzales Convention Center	San Antonio, Tex.	2000
Richmond Convention Center	Richmond, Va.	2001
Washington, D.C., Convention Center	Washington, D.C.	2003

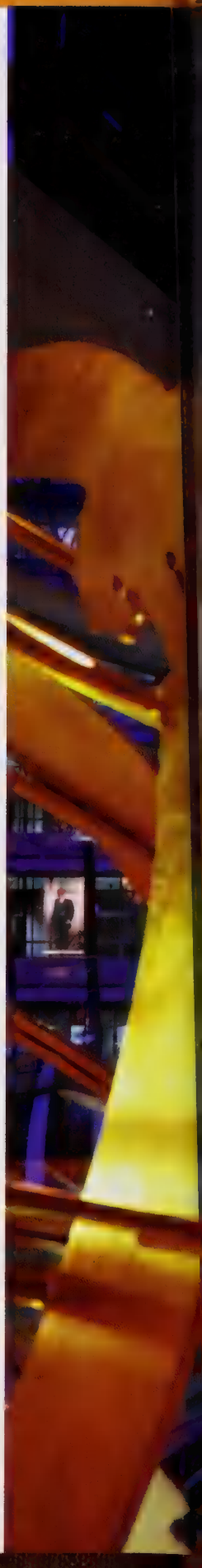
TVS has had a hand in many of the largest convention-center commissions in the country (see a full list of their public projects on www.archrecord.com).

Making it big in their own backyard

To hear Thomas W. Ventulett III tell it, there were no such grand ambitions back in 1968, when he, Bill Thompson, and Ray Stainback founded TVS in Atlanta, Georgia—a city just beginning to evolve into an economic and cultural center of the South. "Our biggest aspiration was to survive our first year in business," he says.

But firm president Roger Neuenschwander, AIA, insists that Ventulett (the only founding partner who is still practicing) is being modest. "I joined TVS in 1973," he recalls, "and it was clear to me even at that stage that the partners had the same long-term goals: to grow steadily and focus on stability." In those few short years, TVS had blossomed from three to nearly 60 people. A year later, the firm landed a hometown commission for the Georgia World Congress Center, which put it on the map.

The World Congress Center design became the template for much of TVS's future work. In that project,



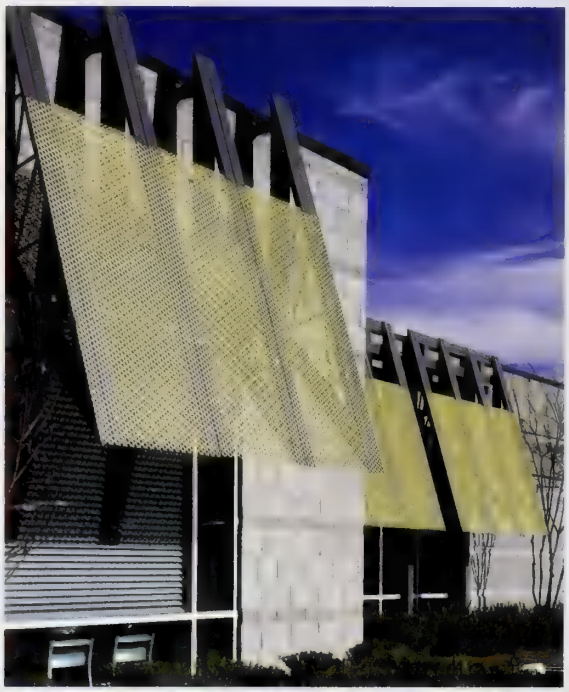
PHOTOGRAPHY: © BRIAN GASSEL

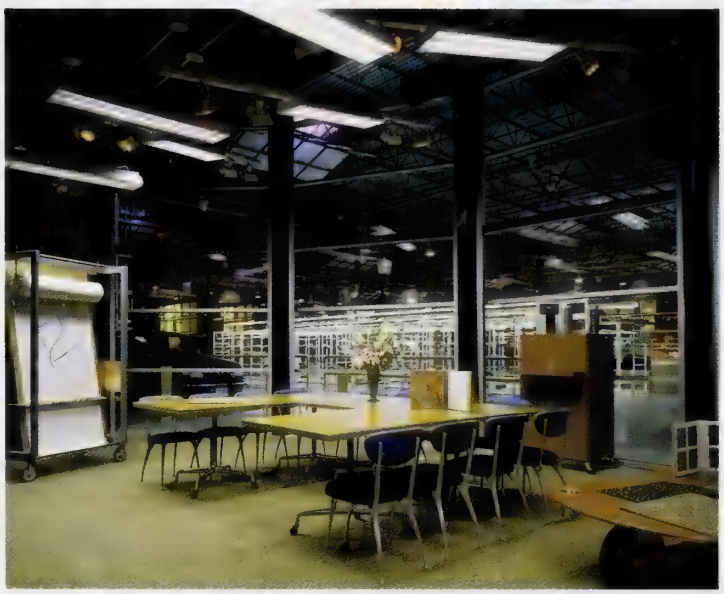


United Parcel Service World Headquarters
Atlanta, Georgia, 1995



Interface Ray C. Anderson Plant
West Point, Georgia, 1997







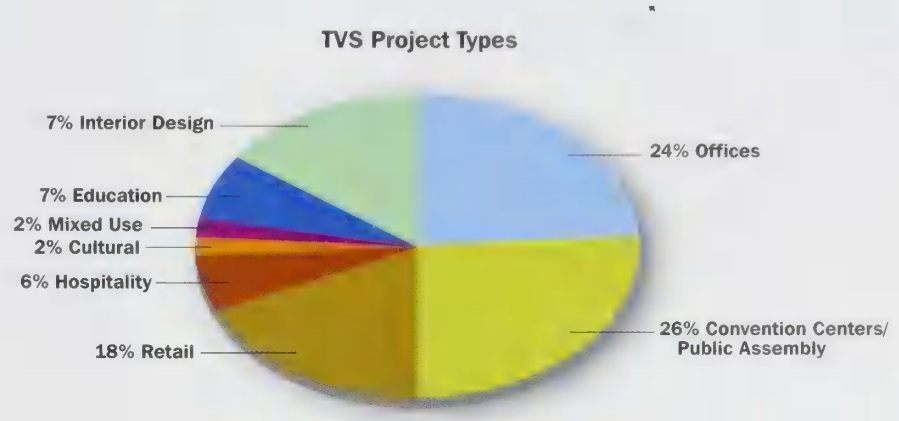


McCormick Place Expansion
Chicago, Illinois, 1997





Prince Street Technologies Corporate Office
Cartersville, Georgia, 1995



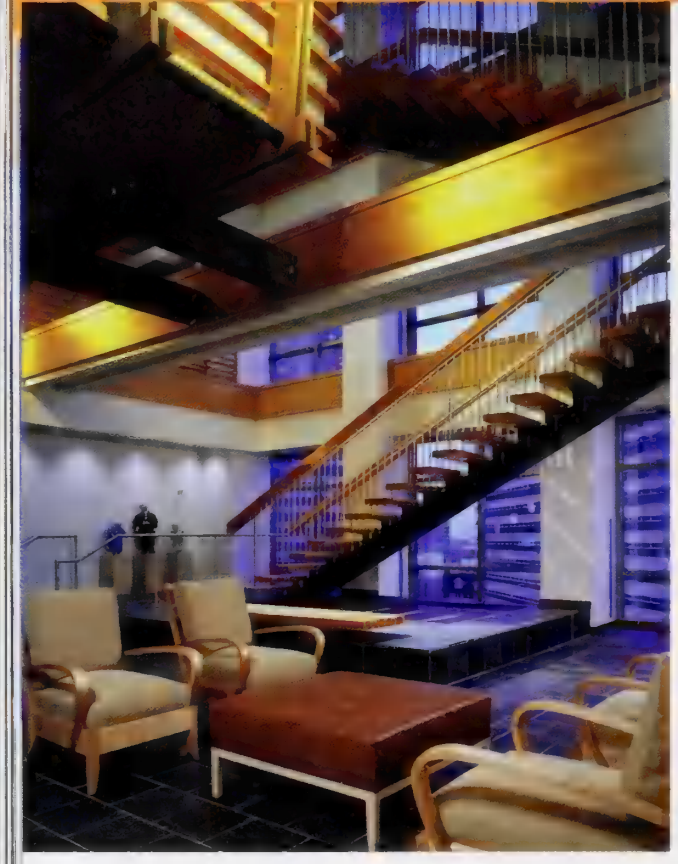
the firm conceived a multiphase series of complementary buildings for public gatherings—conventions, sporting events, hotels—in a down-at-the-heels industrial neighborhood on the periphery of downtown Atlanta. The scheme was wildly successful. Three subsequent expansions in less than thirty years have more than doubled the project's original size. "We sort of lucked into the big time with that one," says Mike Ezell, AIA, senior principal.

It was more than good fortune, for TVS did nothing less than invent the architectural nomenclature of the modern-day convention center. The firm's designers reimagined the convention hall, typically an uninspired clear-span structure, as a building or buildings that needed to include a variety of gathering spaces, arranged and scaled for personal contact. They added concourses, exhibition spaces, flexible meeting rooms, and hallways to facilitate interaction and circulation, making the new complexes microcosms of their host cities. This groundbreaking work has been widely emulated, and two of its centers—Chicago's McCormick Place and Philadelphia's Pennsylvania Convention Center—were feted with AIA national honor awards.

TVS radically overhauled the way convention centers are conceived and designed.

Steady growth with a balanced portfolio

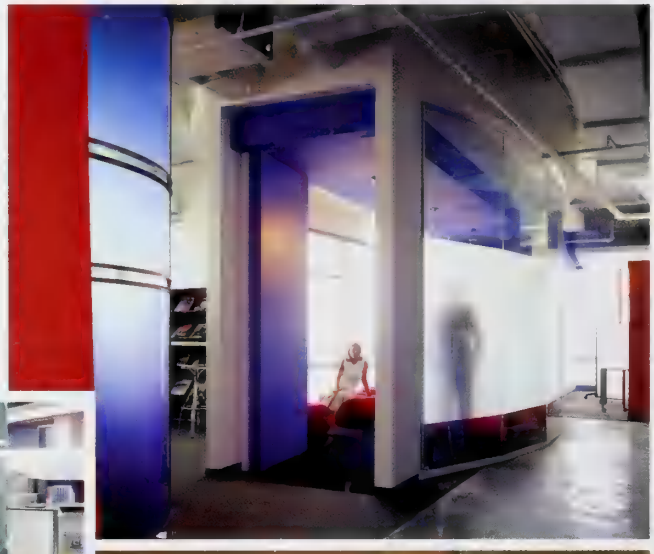
Early success paved the way for many more commissions for convention centers (see sidebar, page 162) and gave TVS entrée to retail and corporate work, including a major project in Atlanta for IBM. During the 1970s and 1980s, it broadened its client base and grew steadily, even as the fates of other firms rose and fell with the real estate market. Throughout this time, the partners remained closely engaged in every aspect of the firm's operation. In 1979, with an eye toward longevity, the partners turned over the firm's ownership to their employees. "It's had a profound cultural impact on the manner in which we practice and the

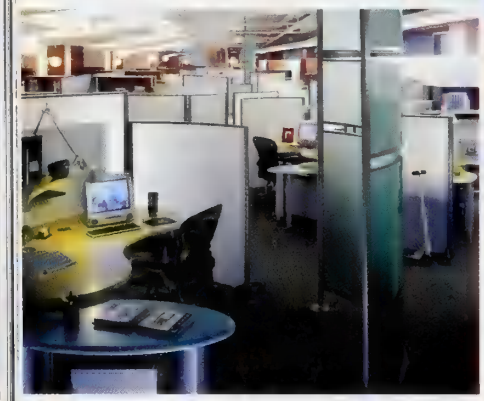


Carter's Children's Clothing
Atlanta, Georgia, 2001

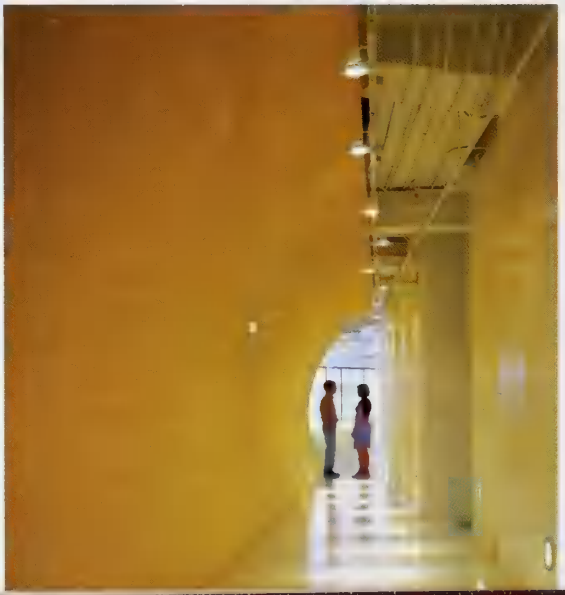


Charlotte Convention Center
Charlotte, North Carolina, 1995





WestWayne Advertising Agency
Atlanta, Georgia, 2001



way we relate to each other and our clients," says Ray Hoover, senior principal. Now there are 265 TVS employees in Atlanta and Chicago who are invested, literally, in the firm's well-being.

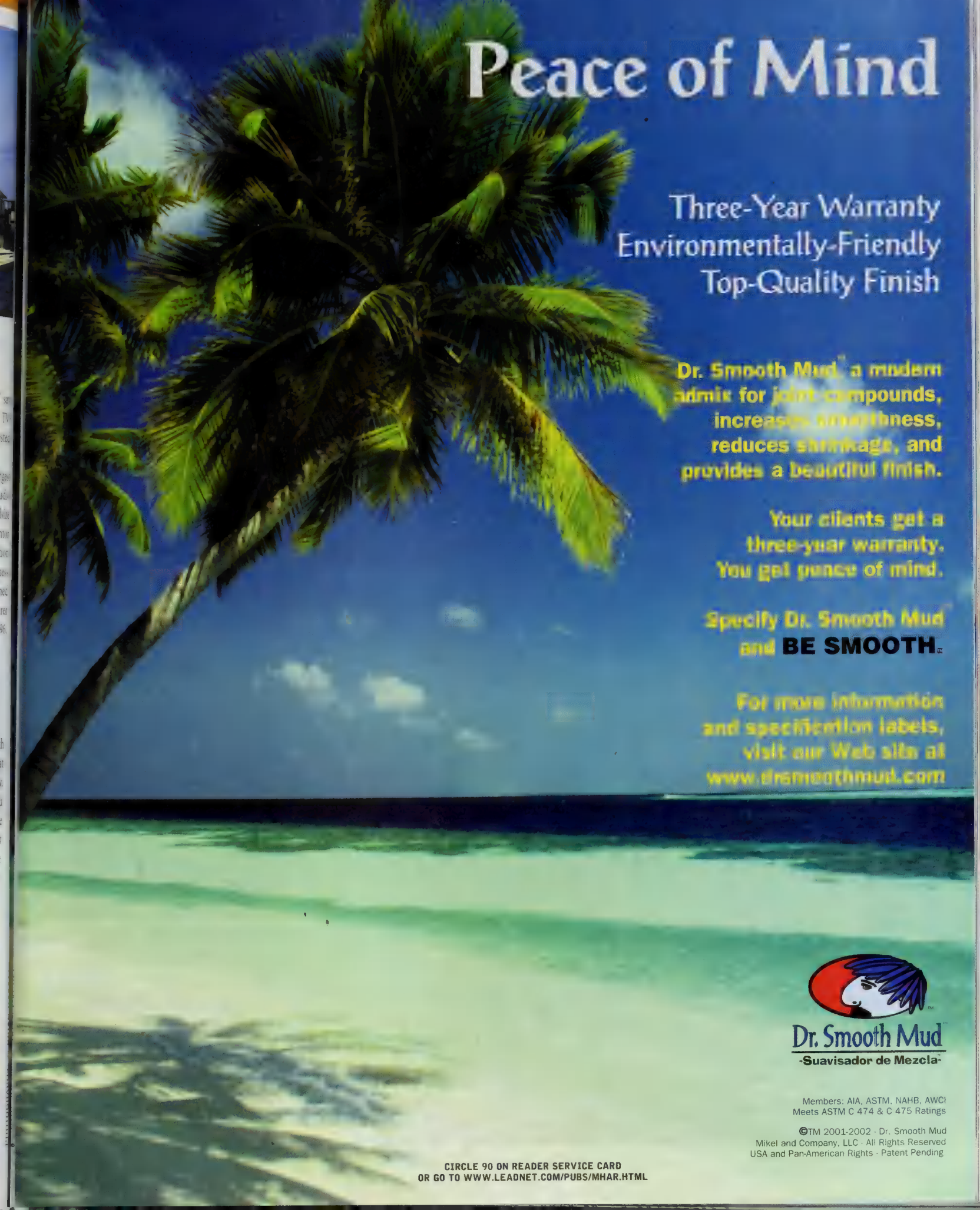
Although TVS ranks among the largest firms in the country, it is organized in a studio system, giving it the feel of a collection of midsize firms. The arrangement lets team leaders mentor younger architects on the entire design and production cycle, and clients have valued the responsiveness and flexibility it offers them. When TVS redesigned the corporate headquarters for carpet manufacturer Prince Street Technologies [RECORD, December 1996,

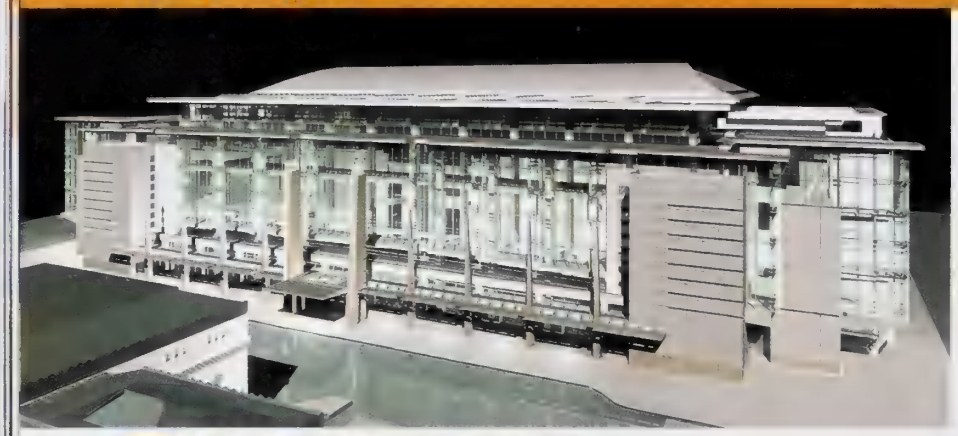
TVS's design philosophy is simple: The client is the visionary, not the architect.

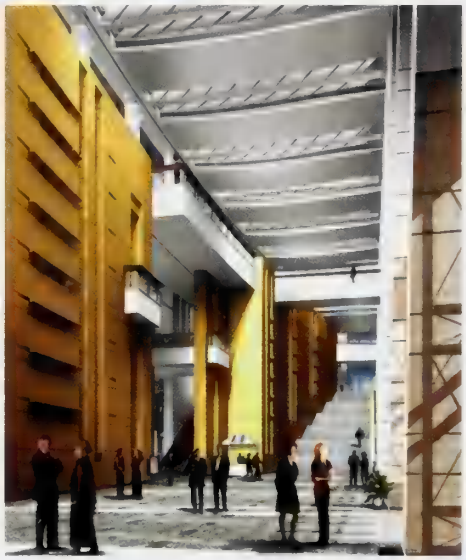
pages 44–46], the architects worked side by side with the client to create an open, transparent building that mirrored the company's newly flattened hierarchy. "Really good architects can bring you benefits you never expected," said president Joyce LaValle when the project was complete. The approach taken is consistent with the TVS design philosophy: The team believe their clients, not they, are the real visionaries. "We just help them interpret their visions," says Ventulett.

Forging ahead with business plans

Today, TVS is a highly diverse practice that has garnered numerous accolades on the national, state, and regional levels. Its interiors studio is one of the largest and busiest in Atlanta, and its thriving convention-center practice has been thrust onto the national stage. Washington, D.C., tapped it to design a 2.3-million-square-foot center to replace an undersize, 1970s Brutalist convention hall which was roundly criticized as a failure even as its concrete was setting. The District eagerly awaits the building's March 2003 opening, the largest public works project in the city


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Washington, D.C., Convention Center
Washington, D.C., 2003



Promenade Two
Atlanta, Georgia, 1990

Puerto Rico Convention Center
San Juan, Puerto Rico, 2002



since it was first laid out. Located in a downtown business improvement district close to public transportation, hotels, and restaurants, it will draw an estimated 2.5 million visitors annually and provide a staggering $1.4 billion per year in economic stimulus.

Not content to rest on its laurels, TVS constantly identifies business opportunities that will keep its practice relevant and robust in the years to come. As early adopters of green building practices, it has implemented a sustainability training program and begun crafting a business plan to outline how to put this expertise to work for its clients. Recently, it formed the Insight Alliance, a flexible design group composed of TVS, retail experts Callison, and resort/destination designers WATG that will collaborate on mixed-use projects around the world. This cooperative strategy gives TVS the reach, flexibility, and responsiveness of a multinational firm, while letting it avoid the risk and expense of opening short-term-project offices.

For now, though, the firm is enjoying its moment in the spotlight—and feeling humbled by it. Ventulett, who worked with past Firm Award winners on the AIA's urban design committee, says, "Those firms were a tremendous influence on me—they got me excited about our work. It never occurred to me that one day we might achieve the same things they did."

"We have such respect for the previous recipients," adds Neuenschwander. "I can't think of a greater gratification than being recognized by your peers." ■



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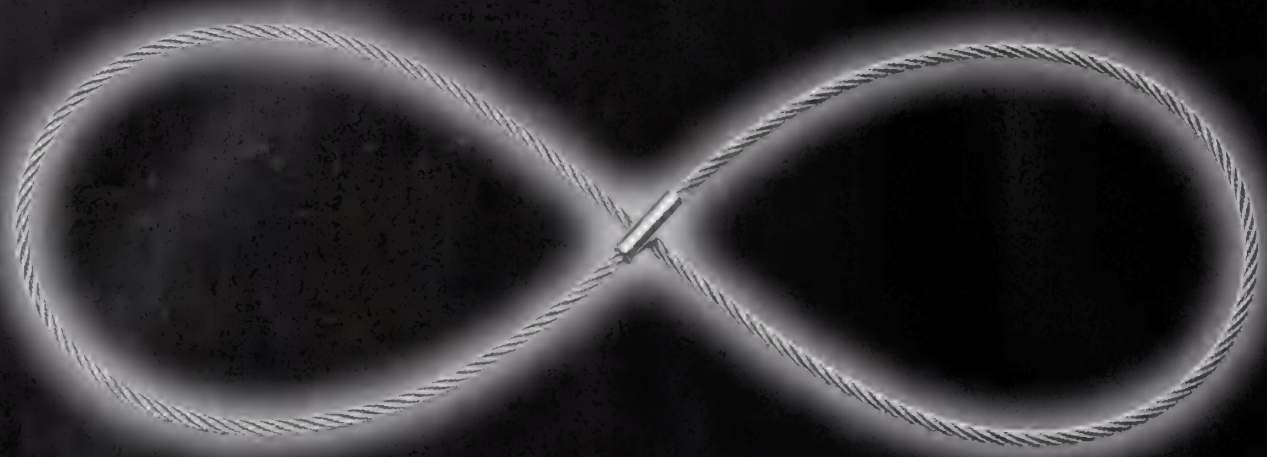
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Gold for Ando

Few architects practicing today have the power to affect the human spirit as does Tadao Ando. The Japanese architect commands the admiration of intellectuals, critics, and the public for projects that combine the pragmatic, the sensual, and the ethereal. As Peter Eisenman wrote, "Something in his work is unnerving, beyond the cool, the rational, the poetic, or the sublime." By combining simple materials and elemental forms, he mediates between humankind and larger forces, touching our senses and elevating our sensibilities. The following pages demonstrate how, by employing a Modernist idiom, 2002 Gold Medalist Ando has created a profound architecture for a postmodern age.

Robert Ivy



Tadao Ando speaks for the RECORD

Interview by Robert Ivy

Last month ARCHITECTURAL RECORD *visited Tadao Ando, Hon. FAIA, in his office in Osaka, Japan, and talked with him about the nature of architecture and creativity, and his view of architecture within a changing global landscape.*

AR: *You have taken the Modernist idiom for your architecture and made it your own. How do you see this language evolving?*

TA: The logic of Modernism, you could say, is born from functionalism as we know it, but that's only the beginning of what Modernism is all about. Modernist architecture also has to deal with people. And people always relate to the spirit of the place, or to the spirit of the time. Without this spirit, Modernist architecture cannot fully exist. Since there is often a mismatch between the logic and the spirit of Modernism, I use architecture to reconcile the two.

AR: *There are several themes in your work that are striking. For example, you conceive of space as a dark, heavy, and powerful void.*

TA: If you give people nothingness, they can ponder about what can be achieved from that nothingness.

AR: *Yet another theme in your work is the element of surprise. You take a path, which makes a turn, and you discover something else.*

TA: When I design buildings, I think of the overall composition, much as the parts of a body would fit together. On top of that, I think about how people will approach the building and experience that space.

AR: *It's not fashionable to talk about beauty, but in looking at your buildings, I think about it. What is the role of beauty in your work?*

TA: There is a role and function for beauty in our time. In Japan it may be translated into the concept of *Uskuji*, which also means a beautiful life, that is, how a person lives—his or her inner life. It's something beyond appearance, or what only meets the eye. You can't really say what is beautiful about a place, but the image of the place will remain vividly with you. People tend not to use this word *beauty* because it's not intellectual—but there has to be an overlap between beauty and intellect.

AR: *You purposefully introduce intuitive, internal, or illogical elements into your work. These are very human attributes. Is this a way of understanding and connecting to people?*

TA: You're absolutely right. It's a way of relating the work to people.

AR: *How does your architecture come to terms with the immense speed of change going on in the world now? For example, you designed the Komyo-ji Temple in Saijo, Ehime, out of wood, which suggests impermanence. It seems like the Ise Shrine in Nara, which is rebuilt every 20 years.*

TA: The speed of change makes you wonder what will become of architecture. In the West there has always been the attempt to try make the religious building, whether it's a Medieval or Renaissance church, an eternal object for the celebration of God. The material chosen, such as stone, brick, or concrete, is meant to eternally preserve what is inside. But in Japan, there's nothing like that, since the temple is made of wood. The divine spirit inside the building is eternal, so the enclosure doesn't have to be. Japanese architecture, therefore, allows you the freedom to express this concept. It's a mistake to adhere to the stylistic development of religious architecture of the past and try to imitate it.

AR: *What about the role of craft in your work?*

TA: The level of detail and craft is something that's inscribed within the original design concept. And so when I begin to draw, I know what kind of detailing I want the building to have.

AR: *What do you see as the role of architecture in the world?*

TA: We have to realize that the "age of discovery" has brought with it a disruption of the environment. Now architects are facing the "age of responsibility." When you design and build something, you have to consider what you are taking away from the earth or the environment in order to make something new. At the same time, I would add that the American people have a lot of courage. This is embedded within the American spirit, the "frontier spirit." You always want to try to make something new, and, of course, America is the world leader in economics today. I hope America can also be the cultural leader of the world, and use this frontier spirit to lead and show others that we need courage to go places where we have not gone before.

If you look at the 1950s, you will notice that the modern world's most representative architecture was created in the United States at that time—such as the Seagram Building. And even before that, with the Chrysler Building and Rockefeller Center, you can see that American society was interested in creating a culture of the future. But now, more and more, its society is concerned with economy and finance. I hope that America as a whole, and especially its architects, will become more seriously involved in producing a new architectural culture that would bring the nation to the apex—where it has stood before—and lead the world. ■

WWW For the complete interview with Tadao Ando, go to Interviews at **architecturalrecord.com**.



Tadao Ando's Constancy of Form

Selected projects from three decades of architectural work demonstrate Ando's clarity of line and contour with the manipulation of space and light that give his forms timeless appeal

1970s–1980s



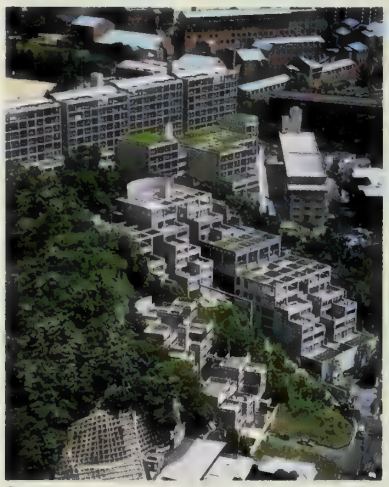
1

1. Interior, Row House, Sumiyoshi-Azuma House, Sumiyoshi, Osaka, Japan, 1976

2. Rokko Housing I, II, II, Nada, Kobe, Hyogo, Japan, 1983, 1993, 1999

3. Time's I, II, Nakagyo, Kyoto, Japan, 1984, 1991

4. Interior, Koshino House, Ashiya, Hyogo, Japan, 1981, 1984



2



3

4



Simple geometric forms, where masses and voids interact with choreographed precision, have marked Tadao Ando's work over the past three decades. The velvety tactility of concrete, combined with the smooth transparency of glass and the forceful ruggedness of steel, are all characteristics of this strikingly crafted work. By deftly placing these serenely proportioned objects in a natural topography where sculptural land forms alternate with bodies of limpid water, or by inserting them into a dense urban fabric, Ando creates a powerful, kinesthetic experience, where just approaching and moving through the spaces takes on dramatically ritualistic overtones. As architectonic investigations, his temples, housing developments, museums, and office complexes illustrate that the manipulation of form, space, and light can bring poetry to the most mundane as well as the most spiritual activities.—Suzanne Stephens

5. Kidosaki House, Setagaya, Tokyo, Japan, 1986

6. Church on the Water, Yufutsu-gun Hokkaido, Japan, 1988

7. Church of the Light, Ibaraki, Osaka, Japan, 1989

8. Chapel on Mount Rokko, Nada, Kobe, Japan, 1986



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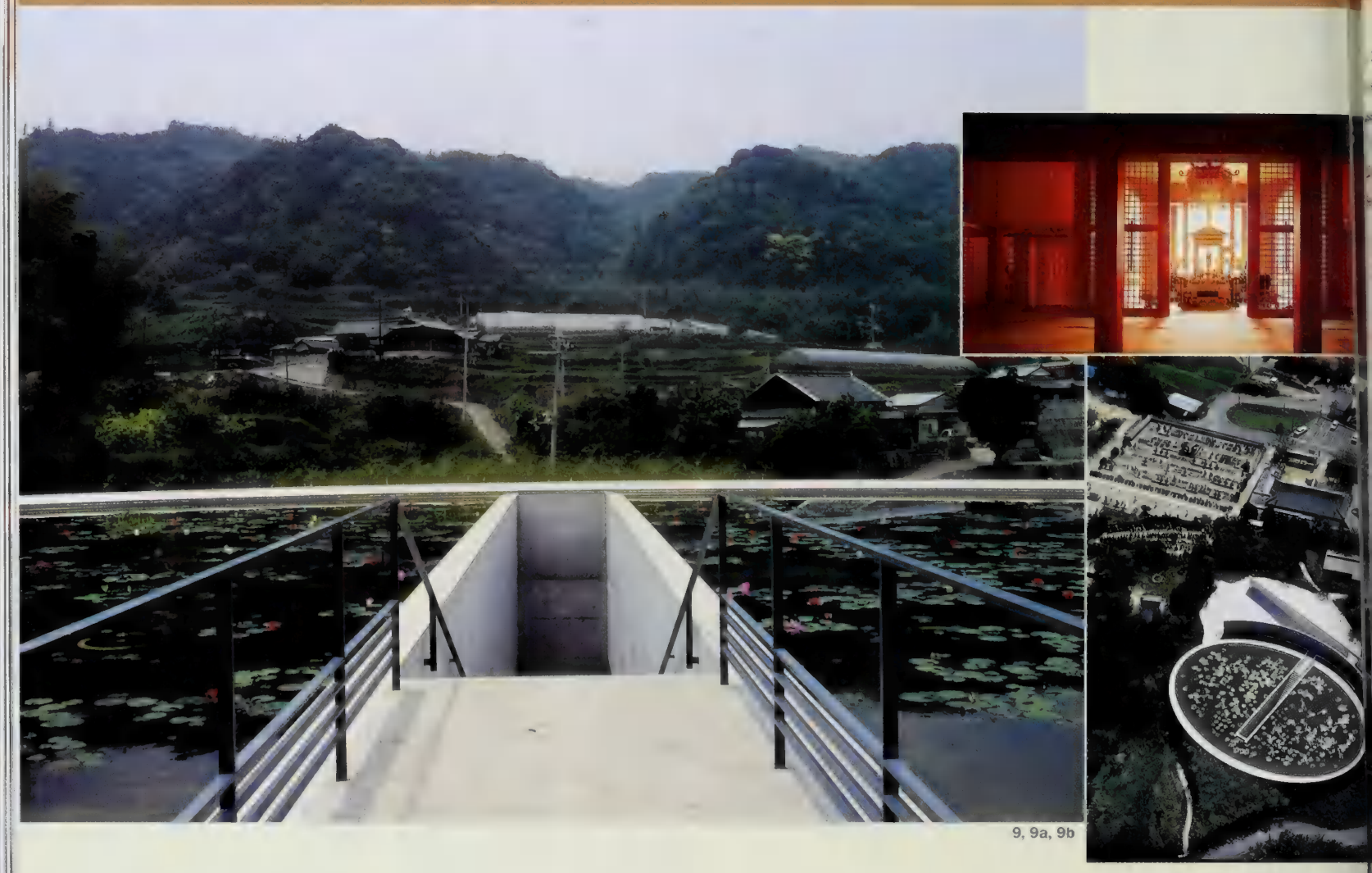


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7

PHOTOGRAPHS: (1, 5, 7, 8); JAPAN ARCHITECT/MATSUOKA (1, 5, 7, 8); JAPAN ARCHITECT/SHIGEO OGAWA (2); JAPAN ARCHITECT/HIROSHI UEDA (3); TOMIO OHASHI (4); TADAO ANDO (6)



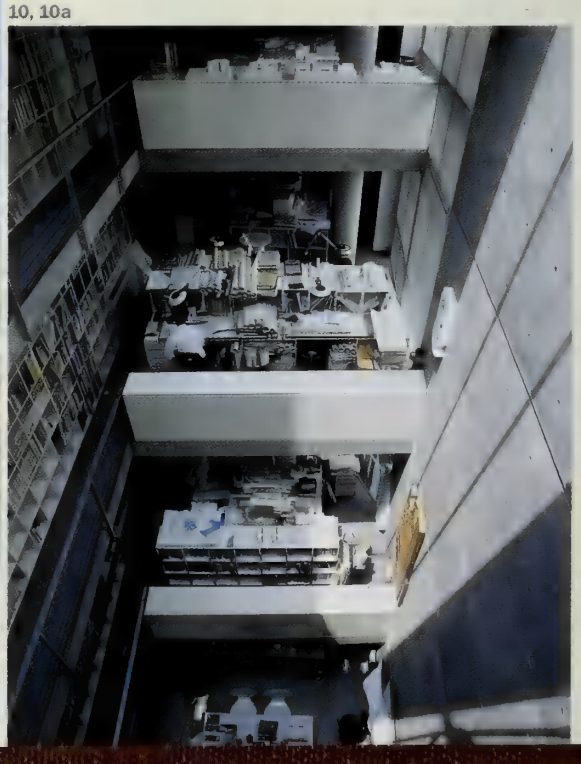
9, 9a, 9b

9, 9a, 9b. Water Temple, Tsuna-gun, Hyogo, Japan, 1991, showing the stair descending from the edge of the lotus pond to the new hall below.

10, 10a. Atelier in Oyodo II, Kita, Osaka, Japan, 1991



10, 10a



11, 11a. Chikatsu-Asuka Historical Museum, Minamikawachi-gun, Osaka, Japan, 1994

12. Japan Pavilion, Expo '92, Seville, Spain, 1992



11, 11a



12





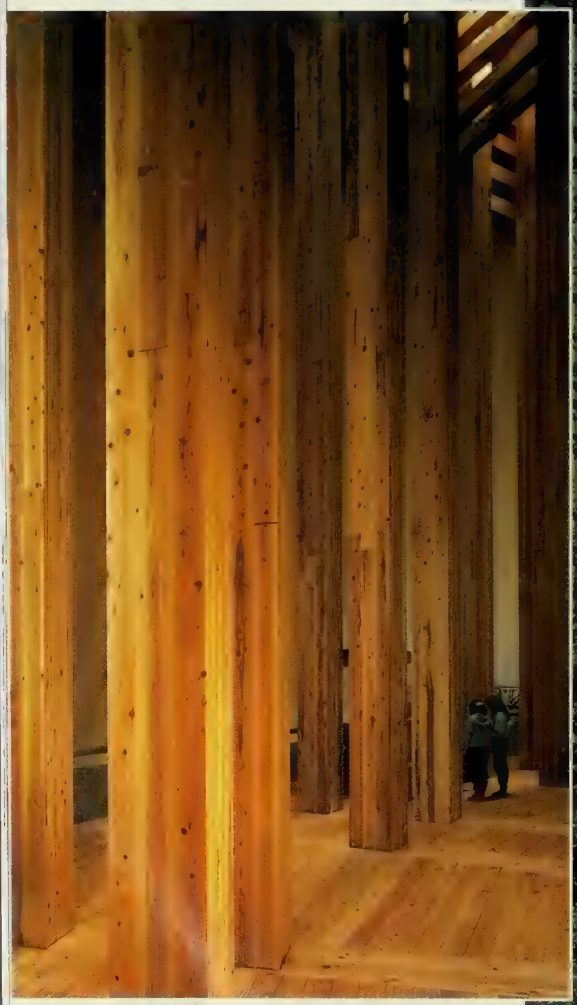
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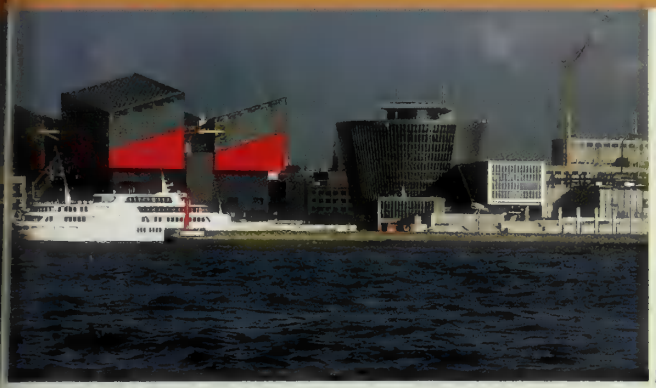
13. Meditation Space, Unesco, Paris, France, 1995

14, 14a. Museum of Wood, Mikata-gun, Hyogo, Japan, 1994



14, 14a





13

15. Suntory Museum, Minato, Osaka, Japan, 1994

16, 16a. Naoshima Contemporary Art Museum and Annex, Naoshima, Kagawa, Japan, 1992, 1995



16, 16a



17, 17a. Awaji-Yumebutai
(Awaji Island Project),
Awajishima, Hyogo, Japan, 2000

18. Fabrica (Benetton
Communication Research Center),
Villorba, Treviso, Italy, 2000

19. Armani/Teatro,
Milan, Italy, 2001



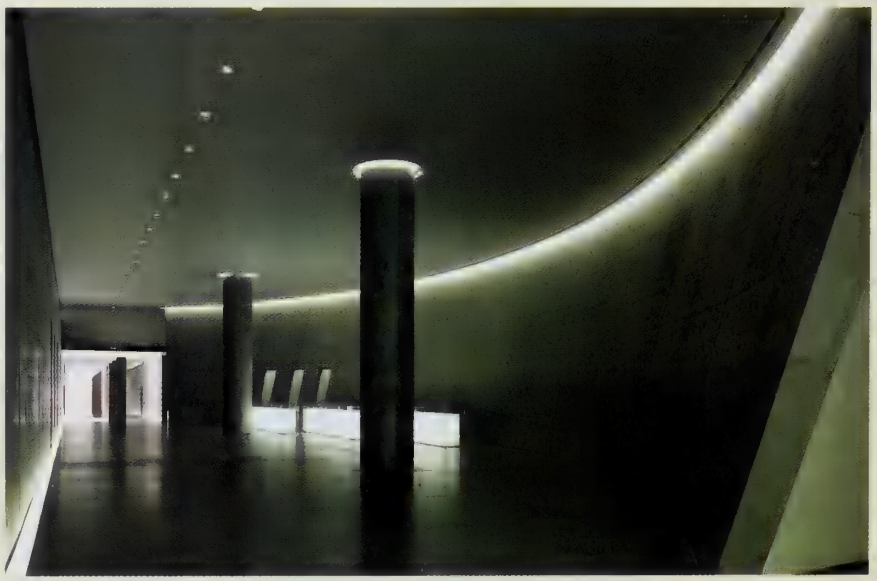
17, 17a



18



19

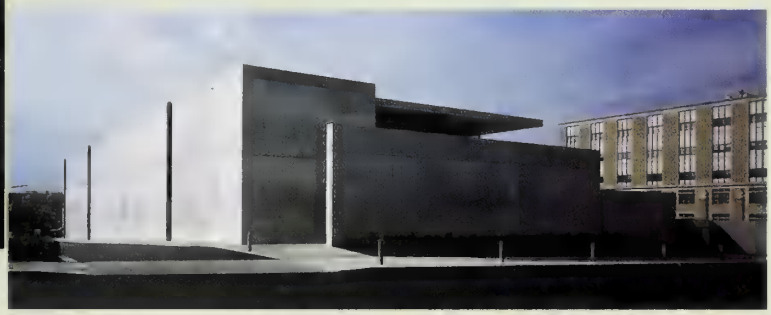




20, 20a



21



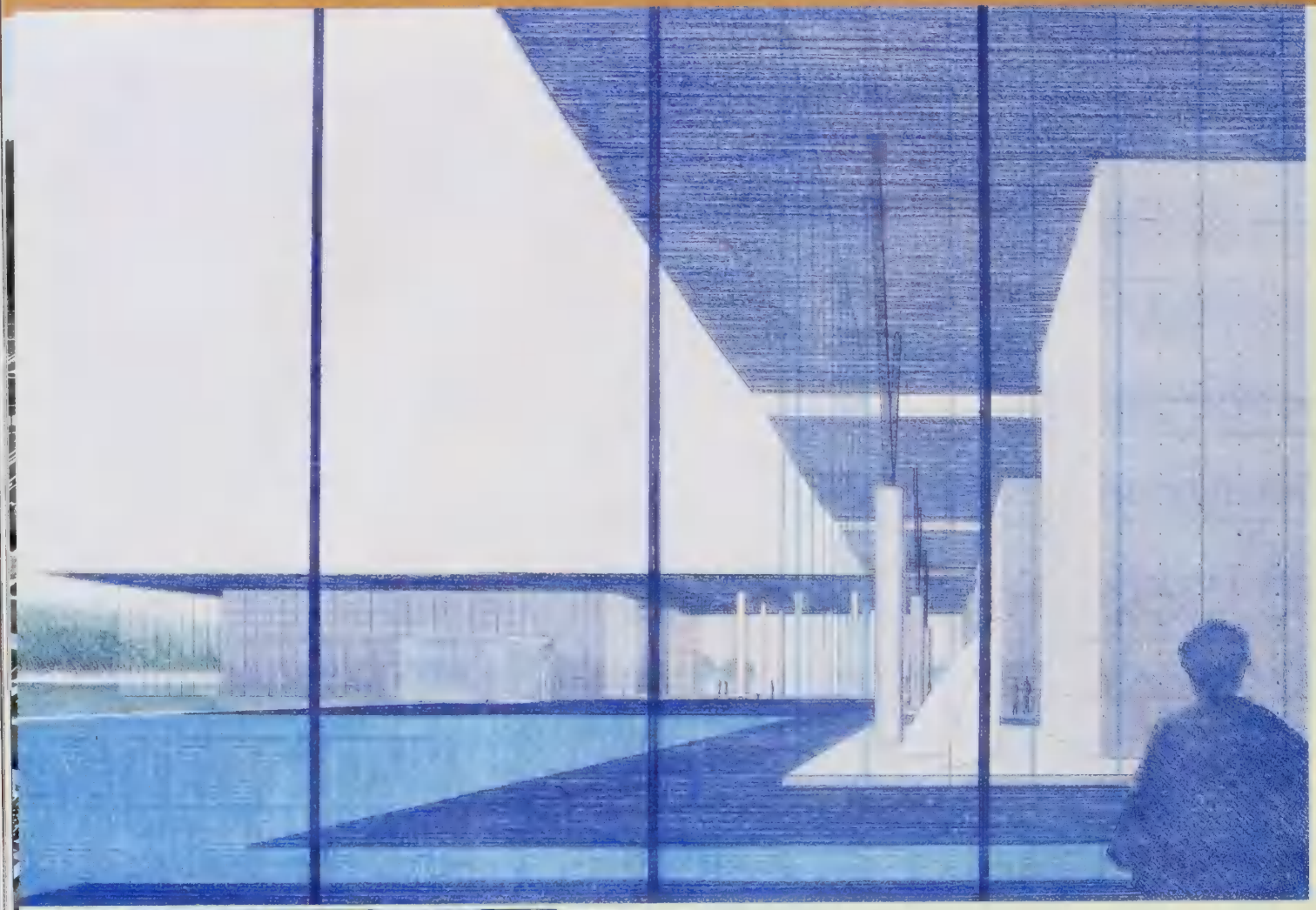
20, 20a. Pulitzer Foundation for the Arts, St. Louis, 2001

21. Komyo-Ji Temple, Saijo, Ehime, Japan, 2000

22. Sayamaike Historical Museum, Osakasayama, Osaka, Japan, 2001

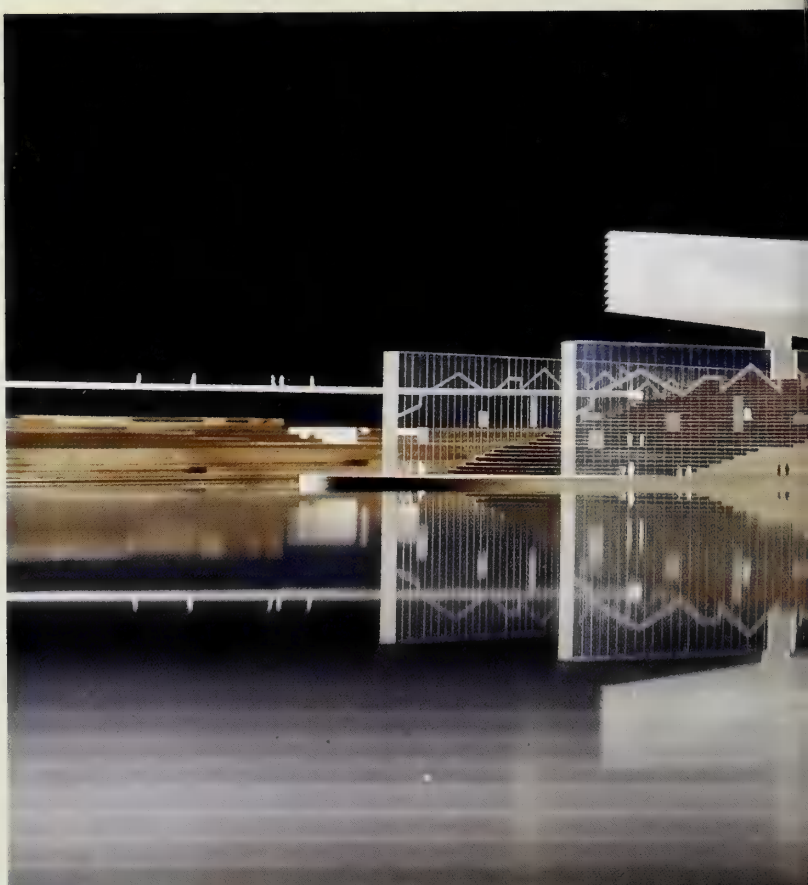
22







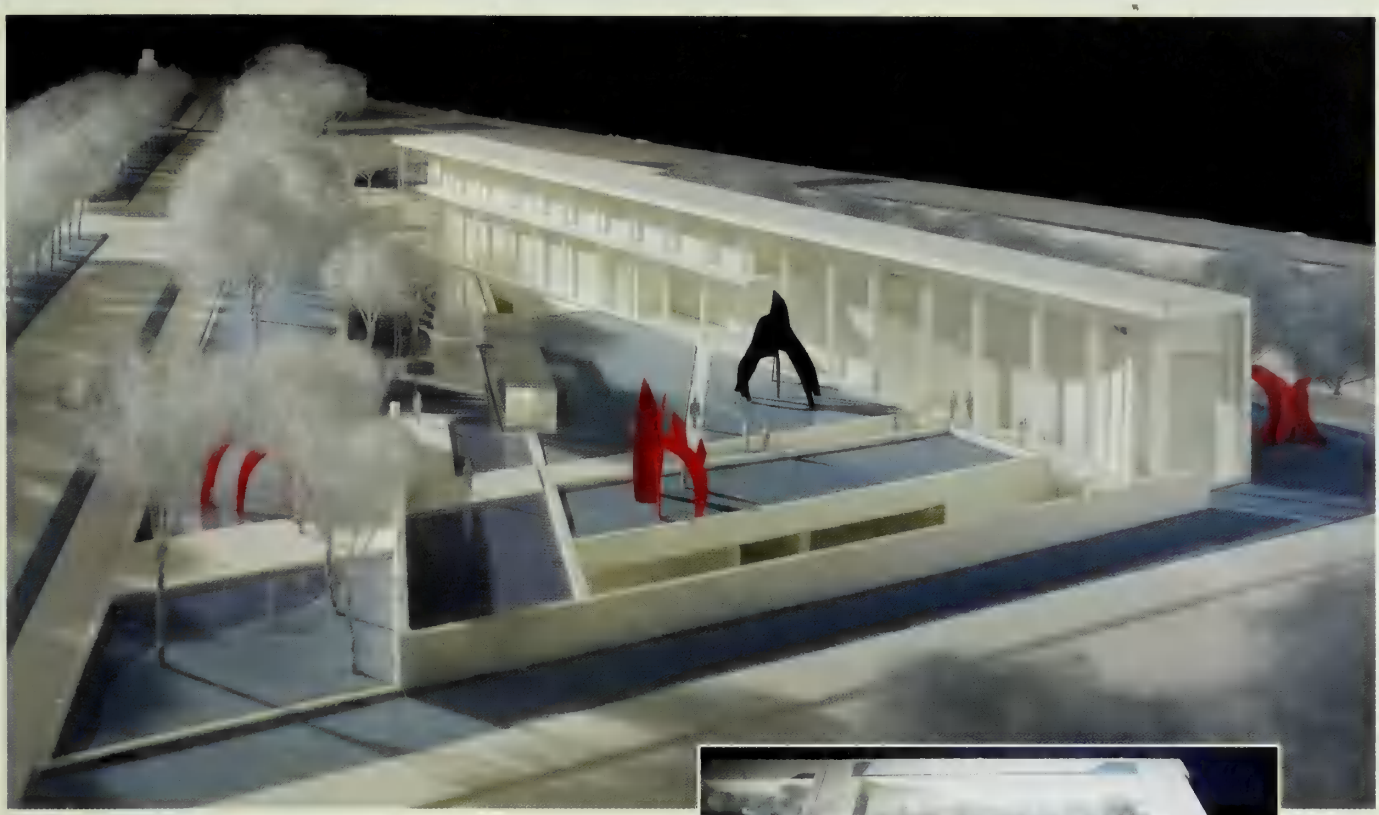
23, 23a



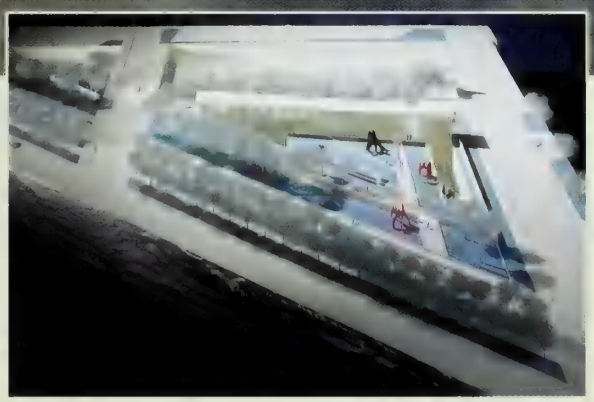
23, 23a. Modern Art Museum of Fort Worth, Fort Worth, 2002

24. Fondation d'Art Contemporain François Pinault, Seguin, France, 2007 (expected completion date)

25, 25a. Calder Museum, Philadelphia (completion date unknown)

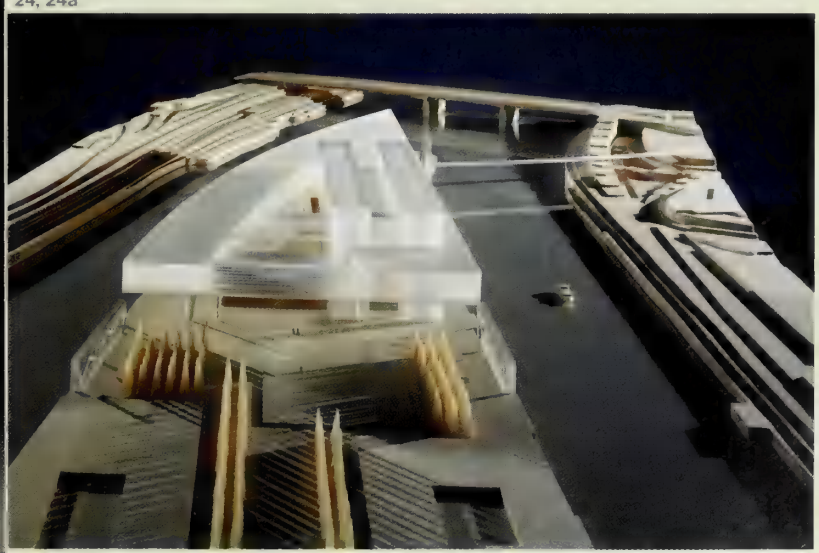


25, 25a





24, 24a



An Elemental Language of Design

Tadao ANDO's architecture balances rational man-made forms with the unpredictable natural world

By Naomi Pollock

There are buildings, and then there is architecture. But even within architecture, not all achievements are created equal. Occasionally we encounter one so remarkable, it shakes our very foundations. The work of this year's AIA Gold Medalist, Tadao Ando, has accomplished this with astonishing frequency. In Ando's hands, the basic tools of our trade—concrete, glass, and wood—become the means of paring away the superfluous and underscoring the essential until a solution is reached that invokes the spirit and stimulates the senses. For more than 30 years, Ando has repeatedly demonstrated this talent through his houses, churches, museums, and commercial projects within Japan, and now, increasingly, in Europe and the U.S.



Row House, Sumiyoshi-Azuma House, Osaka, Japan, 1976.

Perhaps the most emblematic of Ando's works is the Church of the Light, completed in 1989 in suburban Osaka, Japan. Concealed within a rectangular, concrete box and an L-shaped, angled wall is a chapel that is so simple, yet utterly profound. Even the best photographs do not do it justice. Muted light bordering on semidarkness fills the nave, yet two narrow slots of intense daylight in the shape of a cross pierce the wall behind the altar. A study in contrasts, the soothing, softly lighted sanctuary with its plain wooden pews invites contemplation, while the sharply defined cross draws the gaze like a magnet and focuses attention on the appointed task of supplication. Through his controlled use of light, exacting geometries, and superbly crafted materials, Ando deftly translates the experience of prayer into architectural expression.

While the orchestration of these elements makes Ando's buildings so compelling, his use of concrete is the most imitated aspect of his architecture. Yet few architects come anywhere close to achieving Ando's velvety texture and uniform color. The secret is not in the material's composition, but in its formwork—itself practically a work of art. Made from carefully treated wood planks assembled with a high level of precision, the form's perfectly honed surfaces help eliminate imperfections and leave their smooth imprint on the concrete as it cures. In fact, the forms used for the Church of the Light were so refined that instead of being discarded after construction, they were stained and recycled as wooden pews and flooring.

Ando's love affair with concrete is much more than skin deep. He uses angled or curved walls and ramps that take advantage of the material's plasticity to offset his buildings' rectilinear compositions. And out of its dense matter Ando fashions thick walls that enclose inwardly focused buildings and sanctuarylike spaces that are separated from their surroundings but not from the natural environment. Indeed, the unadorned concrete planes are the ideal backdrop for the ever-changing diurnal light and mesmerizing pools of water, continually switching their course, that are featured in his buildings.

The balancing of rational, man-made forms and the unpredictable, natural world is a recurrent theme in Ando's work. Although Ando's brand of nature is a far cry from its wild and chaotic original state, he does not try to dominate it, either. Instead, he seeks a harmonious continuum between indoors and out by limiting exposure, sometimes very dramatically, or by using water, and occasionally greenery, in an abstracted or controlled way. Much more than decorative add-ons, Ando's reflecting pools are as integral to the overall composition as any major room, and often fill substantial parts of the respective building footprints. The pools contribute to the contemplative atmosphere, incorporating trees and clouds into the building, if only as reflections on the water's shimmering surface.

Ando's reverence for and studied inclusion of nature surely owe something to traditional Japan, where exquisite gardens look untouched, although every branch has been pruned and every stone positioned. The restrained way he frames views raises the appreciation of nature while it recalls traditional windows and wall openings that focus the eye on a particular scene, instead of allowing it to roam freely over the landscape. Yet Ando's compelling use of concrete and his manipulation of searing daylight—in contrast to traditional Japan's preference for shadowy, indirect light—are evidence of the profound impact Western design has had on him.



Naoshima Contemporary Art Museum, Kagawa, Japan, 1995 (above and opposite).

Ando's interest in Japanese and Western design developed in tandem almost from the start. Born in Osaka in 1941, he grew up in his



ANDO'S SELF-DIRECTED APPROACH AND DISTINCT VISION SET HIM APART FROM MOST ARCHITECTS IN JAPAN.



The power and drama of the Koshino House, Ashiya, Hyogo, Japan, 1984, is achieved through the use of concrete and light.

grandmother's home. A typical house made of wood and paper, which he still owns, it happened to be across the street from a carpenter's shop where Ando spent hours learning to work with wood. By the time he turned 18, he had begun his independent investigation of architecture in earnest by visiting temples, shrines, and teahouses in nearby Kyoto and Nara. "I was studying architecture by going to see actual buildings and reading about them," Ando explains.

Even during a brief stint as a professional boxer, Ando continued learning about this subject. One of the books that captivated him was a volume about Le Corbusier, which he purchased at a used bookstore in Osaka. "I traced the drawings of his early period so many times that all the pages turned black," Ando says. During the mid-1960s, he made several trips to Europe, the U.S., and Africa to experience Western architecture firsthand. Ando's unique self-directed approach—he never studied architecture at school and never apprenticed in an established firm—sets him apart from most designers in Japan, where few stray from a set course. But it may account for his clear, distinct vision, which does not bear the mark of any mentor and does not belong to any movement.

WITH CONCRETE, GLASS, AND WOOD, ANDO PARES AWAY THE SUPERFLUOUS AND UNDERSCORES THE ESSENTIAL.

By 1969, Ando had spent enough time in practical training to take the professional licensing exam—passing the first time—and then open an office. Although his practice now fills a five-story, curved, concrete building at the end of a quiet Osaka street, Ando still keeps close tabs on his projects. From his large, square desk at the base of a skylighted atrium running the height of the building, Ando can communicate easily with his staff hard at work in the studios surrounding the void, as well as give his dog, Le Corbusier, an occasional pat as he lumbers by. While a skylight crowns the atrium, the building is essentially devoid of windows, except for a large strip of glass down the center of the facade and two little round portholes on either side of the main entrance.

Despite his unconventional training, Ando has become a significant player in Japan's architectural mainstream. He was even invited to join the faculty of Tokyo University in 1997. Having launched his practice with the design for the interior of a café, by 1976 Ando established his reputation with his Sumiyoshi Row House. While very modest in scale, this rebuilding of an existing house in central Osaka shocked Japan's architectural community with its blank, concrete facade and internal, but completely exposed, courtyard separating the kitchen/dining room from the living room on the ground floor and the children's and parents' bedrooms on the second. The house forced the occupants to cross an outdoor space regardless of the weather to complete the most basic functions. But it also outlined ideas, principally the integration of daylight and the introduction of nature, that Ando has grappled with ever since.

Throughout the 1970s, Ando built a stream of private houses and small commercial developments in and around Osaka that brought him increasing recognition. One of the defining moments of this stage of his career was the completion of the Rokko Housing overlooking the Bay of Osaka. A grid of boxlike dwellings interspersed with plazas, the 20-unit complex built into the south-facing 60-degree slope of Mt. Rokko demonstrated Ando's ability to jump from small to large-scale projects and to another level of complexity in design.

While Ando's work had begun to garner attention abroad, it was not until the completion of his churches and museums in the 1980s that his international reputation took off. It was through these projects that Ando's real gift for manipulating light, engaging nature, and imbuing buildings with a palpable spirituality became apparent. Yet, because most of his buildings during this period were built in Kansai, an area of Japan that includes Osaka, Kyoto, and Kobe, much of his Western audience could not experience his architecture directly.

In the 1990s, Ando's identity as one of the world's leading architects solidified. A major benchmark occurred when the Museum of Modern Art in New York anointed him with a solo show in 1991. A stunning display, the exhibition attracted the attention of the general public in the U.S. and was the first of many prestigious accolades and awards that Ando was to receive. It also spawned the commission for a private home in Chicago, his first building on American soil.

With the opening of the Pulitzer Foundation for the Arts in St. Louis last fall and the much anticipated completion of the Modern Art Museum of Fort Worth later this year, not to mention the Alexander Calder museum proposed for Philadelphia, Ando's work soon will be better known to Americans. The architecture may be rooted in Japan, but its potency easily transcends national bounds. ■



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Small, medium, and large

Is Growth a Burden or a Blessing?

By Jane F. Kolleeny and Charles Linn, FAIA

Starting the firm seemed simple enough. You and a few friends from college struck out on your own with a couple of small contracts. That was 15 years ago. Your desks were hollow-core doors on sawhorses jammed into a second-floor office subleased from an insurance agency. Somebody gave you a two-year-old set of *Sweet's*. One of your friends did the books, and once a month on Friday $20 was pilfered from the cookie jar for ribs and beer. That was your company culture.

A year later, you and your partners faced what seemed like a huge decision. To qualify for a project you sought, you'd have to hire an honest-to-goodness, full-time employee. Now you'd be paying health insurance and workman's compensation, you'd have to withhold taxes and eventually pay other benefits, such as a 401K, profit sharing, vacations, and sick leave. To break even on the costs of hiring, you'd have to keep the new person on for at least a year. But it was time to sink or swim, and you dove in.

Once you'd added one employee, hiring others got easier. When the two church jobs came along, you added four. When you got the high school job, you added six more and moved to a bigger space. Pretty soon there was a receptionist, secretary, a bookkeeper, a spec writer, a field person, a marketing manager, a kid to update the Web site, a human resources director, and an employee manual. Nowadays there are 75 employees. Where all-night charrettes once demonstrated the firm's enthusiasm for flexing its creative muscle, timesheets and billable hours govern yours and everybody's thinking these days. When it's time for ribs (rice and beans for the vegetarians) and near-beer (you wouldn't want to be liable if an employee had a car accident), you and your partners catch yourselves calculating how billable hours will slip away while everybody eats, and wondering, are we still having fun?

Growth is a slippery slope that all firms either embrace or eschew, since firms are on a continual path of change and repositioning. For example, Herbert Lewis Kruse Blunck Architecture, in Des Moines, Iowa, had a staff of 28 in 1997 and 52 in 2001, almost doubling in size in four years. Mithun Architects, in Seattle, jumped from 50 to 150 employees between 1992 and 2002, tripling its size over a 10-year period. At the same time, many partnerships divide and refine into new identities, such as Hellmuth, Obata + Kassabaum (HOK), with 1,850 employees in 24 offices worldwide, which is divided into three main businesses with several business-unit divisions organized according to market type.

Many jobs require a minimum number of workers, and there is no doubt that the larger an organization gets, the more complex its administration becomes. Increased workload means an enlarged infrastructure, which means escalating overhead, reinventing firm culture, and pursuing new markets. Gary Desmond, FAIA, of AR7 Hoover Desmond Architects in Denver, with a total staff of 21, says, "smaller size is better for culture but not as good for benefits and HR." A larger firm like HOK, founded in 1955 by three partners, today must overcome the

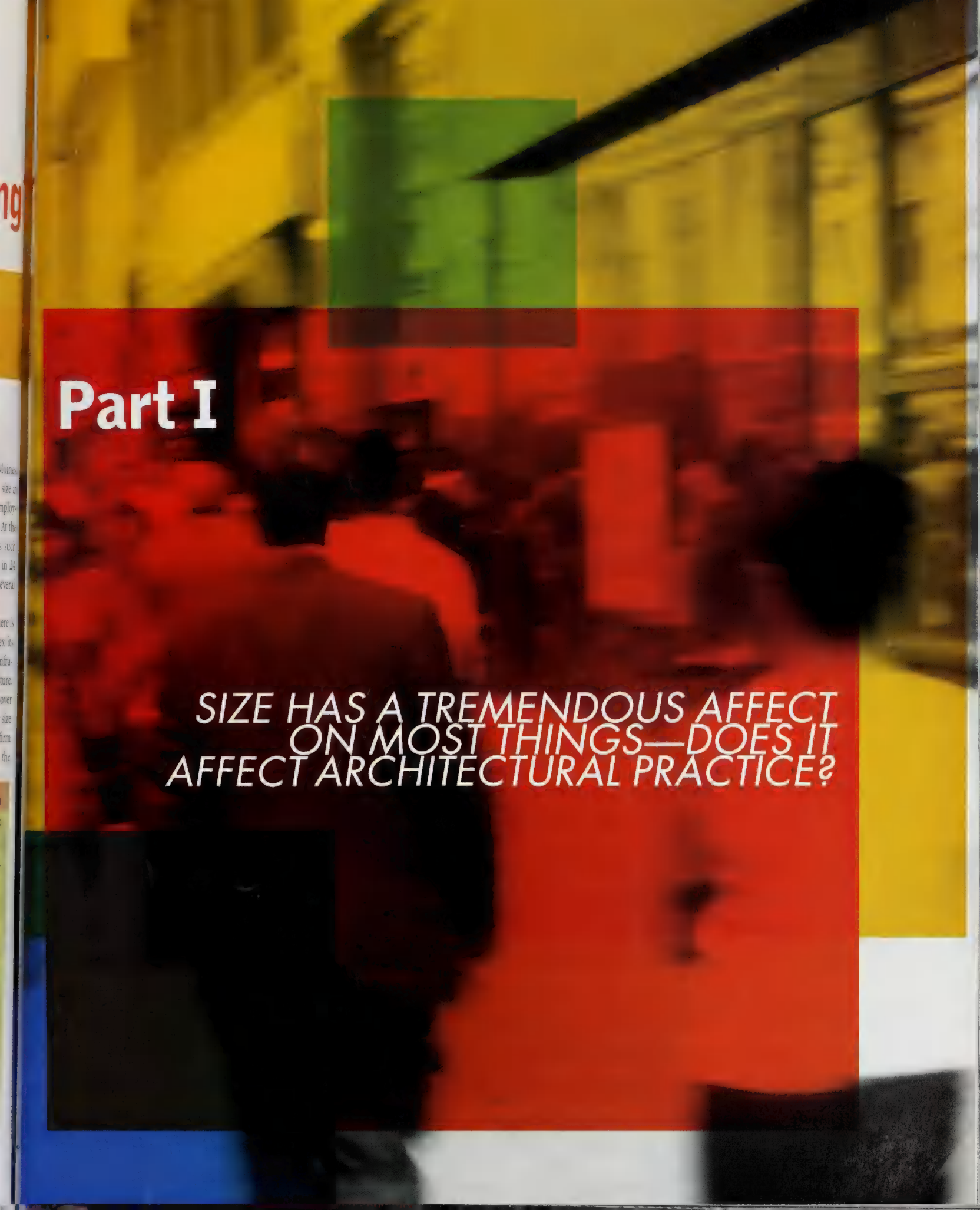
Growing Pains: What It Costs to Add an Employee to the Firm

Adding staff is not an inexpensive proposition—when recruiting costs are added to taxes, benefits, equipment, and fees, putting a person to work who makes $55,000 annually could cost almost $27,000! And this does not include other overhead, such as rent, equipment, repairs and maintenance, professional insurance, professional fees, travel and entertainment, depreciation, and so on.

The following represents how much a New York City firm estimates it will spend to recruit and hire a specific individual:

Pre-hire costs	
Candidate identification (advertising/recruiting fees)	$ 450–10,000
Interview process (value of time)	$ 1,100
Offer materials (take-away materials, monograph)	$ 55
Subtotal	$ 1,605 to $11,155
Post-hire costs	
For an employee making	$ 55,000 per year
IT equipment	$ 3,300
Employee benefits	$ 2,500–7,500
Taxes	$ 5,000
Subtotal	$ 10,800 to $15,800
Grand total	$ 12,405 to $26,955

Data courtesy of Tim S. Reedy, Administrative Director, HHPA, New York City



Part I

SIZE HAS A TREMENDOUS AFFECT ON MOST THINGS—DOES IT AFFECT ARCHITECTURAL PRACTICE?

	CITY	STATE	MULTI-OFFICE	# TOTAL STAFF	# PRINCIPALS	# ASSOCIATES	# SUPPORT STAFF	# IT STAFF	YEAR ORIGINATED	PC/MAC	TECHNOLOGY INFRASTRUCTURE	ACCOUNTING SOFTWARE	TYPES OF DATABASES	DATABASE SOFTWARE	CAD SOFTWARE	RENDERING SOFTWARE
AR7 HOOVER DESMOND ARCHITECTS	DENVER	CO	NO	21	4	0	-	1.5	1978	PC/MAC	SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	ACCESS	AUTOCAD	FORM-Z
BELMONT FREEMAN ARCHITECTS	NEW YORK	NY	NO	[illegible]	1	8	1	[illegible]	1986	PC	T-1 LINE, SERVER, [illegible] SITE	QUICKBOOKS	PROJECT, CLIENT	MICROSOFT OFFICE	AUTOCAD	AUTOCAD 3D
BROMLEY CALDARI ARCHITECTS	NEW YORK	NY	NO	8	2	1	1	.5	1991	PC	WEB SITE	QUICKBOOKS	CLIENT	OUTLOOK	AUTOCAD	3D STUDIO
BUTTRICK WHITE [illegible] BURTIS	[illegible] YORK	NY	NO	25	2	2	5.4	1.5	[illegible]	PC	SERVER, [illegible] SITE	HARPER AND SHUMAN	CLIENT	ACCESS	AUTOCAD 2000	LIGHTSCAPE, ILL
CENTERBROOK ARCHITECTS & PLANNERS	CENTERBROOK	CT	NO	75	1	14	16	3	1975	PC	T-1 LINE, SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	PROLOG	AUTOCAD 2002, ARCHITECTURAL DESKTOP 3	3D VIZ
COLLINS + SCOVILLE ARCHITECTS	ALBANY	NY	NO	[illegible]	5	10	7	1.5	1991	PC	T-1 LINES, SERVER, [illegible] SITE INTRANET, EXTRANET		PROJECT, CLIENT, EMPLOYEE	COSENTIAL, ADVANTAGE, EXPEDITION	AUTOCAD LATEST	3D STUDIO, VIZ,
COOPER, ROBERTSON & PARTNERS	NEW YORK	NY	NO	75	18	6	0	4	1979	PC	T-1 LINES, SERVER, WEB SITE INTRANET, EXTRANET	DELTEK	PROJECT, CLIENT, EMPLOYEE	MARKET EDGE ACT, WINDOWS	AUTODESK 2I	ARCHITECTURAL ACCURENDER
CUH2A	PRINCETON	NJ	YES	397	27	109	[illegible]	15	1962	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	ACCESS, SQL SERVER	AUTOCAD, MICROSTATION	3D VIZ, MAX
DANGEROUS ARCHITECTS	CHELSEA	MI	NO	5	1	2	2	.5	1994	PC	SERVER, WEB SITE	DELTEK	PROJECT	MS WORD	AUTOCAD	AUTOCAD
DAVID OWEN TRYBA ARCHITECTS	DENVER	CO	NO	32	[illegible]	7	[illegible]	5	[illegible]	PC	T-1, SERVER, WEB SITE	QUICKBOOKS		[illegible]	AUTOCAD	FORM-Z
DOMINY + ASSOCIATES ARCHITECTS	SAN DIEGO	CA	NO	23	5	2	3	2	1986	PC	SERVER, INTRANET	WIND2	CLIENT	-	AUTOCAD	COREL DRAW, 3D
DPK&A ARCHITECTS	PHILADELPHIA	[illegible]	YES	[illegible]	3	10	7	3	1984	PC	T-1 LINES, SERVER, [illegible] SITE INTRANET, EXTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	ACCESS, OUTLOOK	AUTOCAD 2002	FORM-Z
DWG GROUP	CHESTER	NY	YES	18	2	2	1	2	2000	PC/MAC	T-1 LINE, SERVER, WIRELESS	SEMA4	PROJECT, CLIENT, PERSONAL	AUTOCAD 2000, MICROSTATION		3D STUDIO VIZ
EINHORN YAFFEE PRESCOTT	ALBANY	NY	YES	450	46	160	94	20	1982	PC	T-1, SERVER, WEB SITE, INTRANET	MICROSOFT ACCOUNTING PLUS	PROJECT, CLIENT, EMPLOYEE	CRM, ACCESS, SQL SERVER, ADVANTAGE, ADP	AUTOCAD, MICROSTATION, ARCHITECTURAL DESKTOP	3D STUDIO VIZ, F LIGHTSCAPE
FLAD & ASSOCIATES	MADISON	WI	YES	360	17	84	59	14	1927	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	MS SQL 7	AUTOCAD 2000	ACCURENDER, 3D STUDIO VIZ
GARRETT SMITH	ALBUQUERQUE	NM	NO	9	1	[illegible]	1	1	[illegible]	PC	T-1, SERVER, [illegible] SITE	IN-HOUSE	PROJECT, CLIENT		AUTOCAD	FORM-Z
GRUZEN SAMTON	NEW YORK	NY	YES	135	6	30	15	3	1936	PC	T-1 LINE, SERVER, WEB SITE, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	MARKET EDGE	AUTOCAD 2000	FORM-Z, 3D VIZ, DESKTOP 3.3
GUSTAVSON/DUNDES ARCHITECTURE [illegible] DESIGN	NEW YORK	NY	YES	7	[illegible]	4	1	1	[illegible]	PC	SERVER, [illegible] SITE	SEMA4	PROJECT	-	AUTOCAD DESKTOP	-
HARDY HOLZMAN PFEIFFER ASSOCIATES	NEW YORK	NY	YES	145	[illegible]	16	31	11	1967	PC	T-1 LINE, SERVER, WEB SITE, INTRANET, EXTRANET	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	FILEMAKER PRO, CUMULUS, ACCESS	ARCH. DESKTOP 3.3, FORM-Z, 3D STUDIO MAX	3D MAX, LIGHTSC COREL DRAW
HARLEYELLIS	SOUTHFIELD	[illegible]	YES	313	40	50	48	12	1908	PC	T-1 LINES, SERVER, WEB SITE INTRANET	DELTEK	PROJECT, CLIENT, EMPLOYEE	FOXPRO SQL	MICROSTATION, AUTOCAD	-
HARRY TEAGUE ARCHITECTS	ASPEN	CO	NO	17	1		4	0	1978	MAC	SERVER, WEB SITE	SEMA4, DELTEK	CLIENT, CONTACT	FILEMAKER PRO	POWERCAD	ARCHICAD
HERBERT S. NEWMAN [illegible] PARTNERS	NEW HAVEN	CT	NO	56	7	9	9	3	1964	PC	T-1 LINE, SERVER	DELTEK	PROJECT, CLIENT	ACCESS	AUTOCAD 2000, R14	
HELLMUTH, OBATA + KASSABAUM	ST. LOUIS	MO	YES	1,850	316	459	185	93	1955	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	PIVOTAL, FILEMAKER PRO	AUTOCAD	AUTODESK, 3D STU VIZ
R.M.KLIMENT [illegible] FRANCES HALSBAND ARCHITECTS	NEW YORK	NY	NO	[illegible]	5	[illegible]	[illegible]	[illegible]	1972	PC	T-1 LINE, SERVER, INTRANET, WEB SITE	CFMS, DELTEK ADVANTAGE	CLIENT, CONTACT, PROJECT	ACT, PROLOG MANAGER	AUTOCAD 2000, AUTOCAD 14	3-D STUDIO, ACCU
IBARRA ROSANO DESIGN ARCHITECTS	TUSCON	AZ	NO	2	2	0	0	0	1998	MAC	WEB SITE	-	CLIENT	APPLEWORKS	CLARIS CAD, VECTORWORKS	-
KOHN PEDERSEN FOX	NEW YORK	NY	YES	385	13	72	39	6	1976	PC	T-1 LINE, SERVER, WEB SITE, INTRANET	EXCEL	PROJECT, CLIENT, EMPLOYEE	DELTEK CRM	MICROSTATION, AUTOCAD 2002	3D STUDIO VIZ
KRUECK & SEXTON	CHICAGO	IL	NO	14	2	2	.5	1	1978	PC	T-1 LINE, SERVER, WEB SITE	DELTEK ADV.	-	-	MICROSTATION	FORM-Z
LEERS WEINZAPFEL	BOSTON	MA	NO	35	[illegible]	6	6	1.5	1982	MAC	T-1 LINE, SERVER, WEB SITE	DELTEK ADV.	PROJECT	FILEMAKER PRO	VECTORWORKS	FORM-Z
LINE AND SPACE	TUSCON	AZ	NO	4	3	2	7	0	1978	PC/MAC	T-1, WEB SITE	QUICKEN	CLIENT, PROJECT	-	AUTOCAD	3D VIZ
LMN ARCHITECTS	SEATTLE	WA	NO	105	25	36	20	2	1979	PC	SERVER, WEB SITE	QUICKEN	CLIENT, PROJECT, CONTACT	DELTEK CRM	MICROSTATION	4 MARKETING, 3 GR
LOHAN ASSOCIATES	CHICAGO	IL	NO	65	17	17	17	2	1969	PC	T-1 LINES, SERVER, WEB SITE, INTRANE, EXTRANET	DELTEK ADV.	PROJECT, CLIENT, EMPLOYEE	ADVANTAGE (ACCOUNTING), ACCESS	AUTOCAD 14, AUTOCAD 2000	ADT 2I, 3D STUDIO, MICROSTATION, FOR
LOONEY RICKS KISS	MEMPHIS	TN	YES	146	6	[illegible]	31	[illegible]	1983	PC	T-1, SERVER, WEB SITE, INTRANET	DELTEK ADV.	PROJECT, CLIENT, EMPLOYEE	ACT, DELTEK, ACCESS	AUTOCAD, - ARCH. DESKTOP	3D STUDIO VIZ, FOR LIGHTSCAPE, RHINO
MITHUN ARCHITECTS	SEATTLE	WA	NO	140	15	48	-	5	1949	-	T-1 LINES, EXTRANET, INTRANET, WEB SITE	DELTEK ADV.	CLIENT	FILEMAKER PRO	AUTOCAD 2000, ADT	-
MORGAN ARCHITECTURE	PRINCETON	NJ	NO	5	1	1	3	1	1993	PC	T-1 LINES	SEMA4	PROJECT	-	AUTOCAD	-
MURPHY BURNHAM & BUTTRICK	NEW YORK	NY	NO	17	3	14	3	1	1997	PC	T-1, SERVER,WEB SITE, INTRANET	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	OUTLOOK	AUTOCAD	FORM-Z
NBBJ	SEATTLE	WA	YES	862	91	263	117	3	1943	PC/MAC	T-1 LINES, SERVER, EXTRANET, INTRANET, WEB SITE	HARPER AND SHUMAN	PROJECT, CLIENT, EMPLOYEE	MICROSOFT SQL	MICROSTATION	3D STUDIO VIZ
OGAWA DEPARDON ARCHITECTS	NEW YORK	NY	YES	8	2	0	5	1	1987	PC	T-1 LINES, SERVER, WEB SITE	PROPRIETARY SOFTWARE	CLIENT, EMPLOYEE	OUTLOOK	AUTOCAD	-
PERKINS EASTMAN	NEW YORK	NY	YES	410	26	69	82	14	1981	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	PEACHTREE	PROJECT, CLIENT	COSENTIAL DATABASE	AUTODESK 3 AUTOCAD 2000	3D VIZ, 3D MAX, LIGHTSCAPE
PERRY DEAN ROGERS	BOSTON	MA	NO	52	4	12	8	2	1923	PC	T-1, SERVER, WEB SITE, INTRANET	DELTEK ADV	PROJECT, CLIENT, EMPLOYEE	ACCESS	AUTOCAD	ACCURENDER
PUGH [illegible] SCARPA	SANTA MONICA	CA	NO	19	2	2	2	2 AS NEEDED	1991	PC/MAC	T-1, SERVER, WEB SITE	DELTEK HARPER AND SHUMAN	PROJECT, CLIENT, EMPLOYEE	NOW CONTACT AND NOW UP-TO-DATE	POWERCAD	FORM-Z, PHOTOSHO
RANDY BROWN	OMAHA	NE	NO	4-12	1	1	1	0	1993	PC	SERVER, WEB SITE	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	-	MICROSTATION	3D VIZ
RNL DESIGN	DENVER	CO	NO	200	14	48	15	8	1956	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	-	PROJECT, CLIENT, EMPLOYEE	MS ACCESS	AUTOCAD DESKTOP 3.3	3D VIZ, AUTODESKT
ROSS BARNEY & JANKOWSKI	CHICAGO	IL	NO	49	3	2	-	3	1981	PC	T-1 LINES, SERVER, INTRANET	AXIUM	PROJECT	-	AUTOCAD	3D VIZ, PHOTOSHOP ACCURENDER
SEARL & ASSOCIATES, ARCHITECTS	CHICAGO	IL	YES	11	2	7	2	0	1990	PC	INTRANET, SERVER, WEB SITE	QUICKBOOKS	CLIENT, PROJECT	FILEMAKER PRO	AUTOCAD	ACCURENDER
SHUBIN & DONALDSON	CULVER CITY	CA	YES	12	2	8	2	.5	1990	PC/MAC	SERVER, WEB SITE, INTRANET	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	FILEMAKER PRO	AUTOCAD, VECTORWORKS	FORM-Z, 3D STUDIO
SMITH GROUP	DETROIT	[illegible]	YES	936	163	166	131	28	1853	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK SEMA4	PROJECT, CLIENT, EMPLOYEE	SQL, MS OUTLOOK, MS ACCESS, GENTRAK RFP	AUTOCAD 2001, MICROSTATION	3D STUDIO MAX, V12, FORM-Z
SKIDMORE, OWINGS & MERRILL	NEW YORK	NY	YES	1,017	29	249	208	22	1936	PC/MAC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	MS SQL	-	AUTODESK, 3D STU 3D STUDIO MAX, FO RENDERZONE
SORG & ASSOCIATES	WASHINGTON	DC	NO	35	1	3	4	3	1986	PC	T-1 LINES, SERVER, WEB SITE	DELTEK	PROJECT, EMPLOYEE	FILEMAKER, ACT	-	COREL DRAW
STUDIO A/B	NEW YORK	NY	NO	2	2	0	0	0	1992	PC	WEB SITE	WIND2	PROJECT, CLIENT	EXCEL, ACCESS	DRAWBASE, AUTOCAD	PHOTOSHOP
SWANKE HAYDEN CONNELL ARCHITECTS	NEW YORK	NY	YES	300	16	50	52	15	1906	PC	T-1, SERVER, WEB SITE, INTRANET	EXCEL	PROJECT, CLIENT, EMPLOYEE	ACCESS, DELTEK, ACT, SQL	AUTOCAD	3D STUDIO, FORM-Z
THOMPSON, VENTULETT, STAINBACK [illegible] ASSOCIATES	ATLANTA	GA	YES	268	42	153	76	9	1968	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	VISUAL FOX PRO	MICROSTATION	3D STUDIO
VALERIO DEWALT TRAIN [illegible] ASSOCIATES	CHICAGO	IL	NO	34	5	5	5	1	1982	PC	T-1 LINES, SERVER, WEB SITE	-	PROJECT, CLIENT	ACT, ACCESS	BENTLEY, MICROSTATION	MICROSTATION, PHOTOSHOP, PHOTO
WILLIAMSON POUNDERS	MEMPHIS	TN	NO	15	2	0	3	1	1990	PC	T-1 LINES, SERVER, WEB SITE	WIND2 AND ABRA	PROJECT, CLIENT, EMPLOYEE	MICROSOFT	AUTOCAD, DATACAD	-

PROVIDED FOR TECHNICAL STAFF	# PRINCIPALS PERFORMING BUSINESS DEVELOPEMENT	% PRINCIPALS' TIME IN BUSINESS DEVELOPMENT	OVERSEAS MARKET	% REPEAT CLIENTS	LEADERSHIP TRANSITION POLICY	ADDITIONAL SERVICES
NO	2	35%	NO	50%	YES	PREDESIGN, INTERIORS
NO	1	30%	NO	30%	NO	INTERIORS
–	2	25%	YES	90%	–	PREDESIGN, INTERIORS
NO	2	6%	NO	80%	NO	PREDESIGN
NO	6	60–80%	NO	46%	YES	PREDESIGN, INTERIORS, PROGRAMMING
YES	3	25–30%	NO	75–80%	YES	DESIGN/BUILD, INTERIORS
YES	10	10–25%	NO	65%	YES	PREDESIGN, CORPORATE ADVISORY, PROGRAMMING
–	2	80%	YES	75%	NO	PREDESIGN, LABORATORY PLANNING, STRATEGIC PLANNING
NO	–	20%	NO	0	NO	PREDESIGN, INTERIORS
NO	3	25%	NO	60%	NO	PREDESIGN
NO	1	20%	NO	30–40%	YES	PREDESIGN, INTERIORS
YES	3	30%	NO	70%	YES	DESIGN/BUILD, PREDESIGN, INTERIORS PRESERVATION, CULTURAL RESOURCE MGMT, CONSERVATION
NO	1	40%	NO	30%	NO	DESIGN/BUILD, PREDESIGN
YES	25	15%	YES	80%	YES	DESIGN/BUILD, INTERIORS, PREDESIGN
YES	16	40%	YES	75%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
NO	1	35%	NO	40%	NO	MAINTENANCE, DESIGN/BUILD, PREDESIGN, LANDSCAPE
YES	6	20–90%	YES	60%	YES	PREDESIGN, INTERIORS PROGRAMMING
NO	2	20%	NO		NO	PREDESIGN, INTERIORS
YES	8	25%	NO	10%	YES	PREDESIGN, INTERIORS, PROGRAMMING
YES	35	10–35%	NO	75%	NO	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS, LANDSCAPE
NO	1	10%	YES	–	NO	INTERIORS, PREDESIGN
NO	6	10–80%	NO	70%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
YES	316	20–35%	YES	50%	NO	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS, ENGINEERING, GRAPHICS
YES	4	5%	NO	60%	YES	INTERIORS, PREDESIGN
NO	2		NO	50%		INTERIORS
NO	5	60–80%	YES	30%	YES	PREDESIGN
NO	1	10%	NO	60%	NO	PREDESIGN
NO	4	20%	NO	52%	NO	PREDESIGN
NO	2	10–20%	NO	–	YES	DESIGN/BUILD, PREDESIGN
NO	6 PARTNERS, 16 PRINCIPALS	18–20%	YES	73%	YES	PREDESIGN, INTERIORS , URBAN DESIGN
YES	5	20%	YES	60%	YES	PREDESIGN, INTERIORS
NO	5	15–20%	NO	70%	YES	PREDESIGN, MARKET RESEARCH, COMMUNITY VISIONING, GRAPHICS
YES	ALL	20%	YES	40%	YES	INTERIORS
NO	1	20%	NO	50%	NO	DESIGN/BUILD, INTERIORS
NO	3	50%	YES	50%	NO	MAINTENANCE, PREDESIGN, INTERIORS, GRAPHICS
YES	8	91%	YES	30%	YES	DESIGN/BUILD, MAINTENANCE, PREDESIGN
NO	2	30%	YES	40%	NO	DESIGN/BUILD, PREDESIGN, INTERIORS
NO	26	15%	YES	60%	YES	PREDESIGN, INTERIORS, PROGRAM MGMT., URBAN PLANNING/DESIGN, LANDSCAPE
NO	4	20%	YES	30%	NO	PREDESIGN
NO	2	30%	NO	80%	NO	MAINTENANCE, PREDESIGN, INTERIORS
NO	–	20%	NO	–	–	DESIGN/BUILD, PREDESIGN
YES	14	30%	YES	70%	YES	DESIGN/BUILD, PREDESIGN, INTERIORS
NO	1	30%	NO	30–40%	NO	PREDESIGN INTERIORS
YES	2	20%	NO	25%	NO	PREDESIGN
NO	2	40%	NO	15%	NO	PREDESIGN
YES	14–19	25%	YES	85%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS, LANDSCAPE, ENVIRONMENTAL
YES	29	5–30%	YES	75%	YES	DESIGN/BUILD, PREDESIGN, INTERIORS, ENGINEERING, GRAPHICS
YES	2	25%	YES	65%	NO	DESIGN/BUILD, INTERIORS
NO	2	10%	NO	20%	NO	INTERIORS
YES	16	50%	YES	60%	YES	PREDESIGN, INTERIORS, PRESERVATION PLANNING
YES	18	25%	YES	60–65%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
YES	5	45%	NO	90%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
NO	2	25%	NO	25%	NO	PREDESIGN, INTERIORS

The following data was collected between October 2001 and January 2002, using a two-part survey. One survey solicited factual information about firms, part of which is included in this chart. The balance of this data will appear next month. The second survey featured narrative questions, was more subjective, and solicited opinions concerning the relationship between a firm's size and its ability to function. We used this survey to substantiate many of the points we make in our article series. Of the 52 respondents in the survey, 18 are in the small category, 10 are medium-size, 10 are large, and 14 extra-large. Geographically, half the firms are on the coasts and half in the interior. Twenty-one of the firms we surveyed have more than one office, and this included firms in all size categories, with 12 multi-office extra-large firms. The youngest firm was founded in 2000; the oldest in 1853. Ten firms have both Macintosh computers and PCs; three have Macs only. Even firms of modest size have Web sites—only three did not. All but a few small firms have information-technology staff. About half the firms have done at least one overseas project, and most firms perform predesign and interior work. Some firms reported as much as 90 percent of their work was from repeat clients, although other firms specialize in project types that do not tend to repeat, such as performing arts facilities.

Note: A dash appearing in the chart means either "none" or information was not provided.



perception that "we are a huge, bureaucratic, corporate powerhouse," says Bill Valentine, president of the HOK Group. Growth also means more institutionalization and specialization of tasks and a greater need to pay attention to the bottom line to cover the overhead and keep those hungry mouths fed. "Larger firms create a machine with lots of cogs to plug people into—it is a more efficient mousetrap," says Randy Brown, AIA, of Omaha, who has 12 employees.

And what does the need for profitability do to the creativity that governed the initial impulse to produce architecture? Some say there is no conflict. "Profitability is a direct extension of having a strategic plan that clearly defines the direction you will take in your selected markets. You maintain profitability by staying with your plan," says Roger Neuenschwander, president of Thompson, Ventulett, Stainback and Associates (TVSA), in Atlanta, with 268 employees. Others are not so sure: "It is always hard to make a profit when you care about design," says Gilles Depardon of Ogawa Depardon Architects, a firm of eight in New York City.

For many firms, growth is reactive rather than proactive. Landing new work with considerable scope motivates firms to hire staff as quickly as possible. But growth is not just about adding more warm bodies; growth causes revenue and quality-control problems, not to mention the time-consuming task of hiring staff and then training them, which often gets short shrift because of time demands. And there are more costs incurred in hiring than just paying a salary (see box, page 190). Firm managers should think about growth strategically, rather than impulsively, anticipating what will happen before the squeeze, rather than during it.

Why write about firm size?

Over years of interviewing people for the magazine on a wide range of practice-related issues, we've found the subject of firm size was common to most of our discussions. One of the most attractive things about practicing architecture is that firms don't have to be large to do it well—the perfect size is whatever works best to accomplish whatever purpose the architect has embraced for his or her work.

But that outlook may be simplistic. We found that firms large and small alike often have the impression that their size is awkward, that it "both hinders and helps," says Peter Newman, a partner at Herbert S. Newman and Partners, New Haven (56 on staff). So, we decided to explore what kinds of problems are unique to different-size firms. For this three-part series of articles, we used a survey to solicit opinions about firm operation from principals, administrators, and marketing staff of about 50 firms of all sizes, located throughout the U.S. Our survey was not intended to be conclusive, but to unveil trends to guide our discussion. Our sample was not random—we chose firms that we have worked with in the past.

We divided the firms into categories by size. Looking at the *AIA Firm Survey for 2000–2002*, we learned that 87 percent of firms have one to 19 people, and we decided to call these "small firms." This category was subdivided in the AIA survey, but we felt one category that featured firms of modest size would illustrate similarities of culture, overhead, and project opportunities. Our medium-size category, at 20 to 49 persons, was the same in the AIA survey, and comprises 8 percent of total firms. Our large firm size is 50 to 149 people, and we added an extra-large category to account for firms that employ a minimum of 150 people, although AIA combined these in a large-size category of 50 or more staff. We felt it necessary to create this "jumbo" category to account for the mega-size firms responsible for the vast majority of the earnings of our profession. By compiling this information and reviewing recent literature on firm organization and management, we have made a number of observations on how firm size affects, or in some cases does not affect, the practice of architecture.

The challenges and relevance of size

Size has a tremendous affect on most things, but is good architectural practice among them? It certainly affects the tasks of the individuals who work at firms, the process by which design is performed, and the overall culture. Some recent graduates say they want to work at small firms so they can have a diversified experience. Belmont Freeman, AIA, of Belmont Freeman Architects, New York City, with a staff of eight, feels its small size "is a positive attraction to talented young professionals who see the opportunity to get directly involved in all aspects of design and production."

Others say they want the large firm experience so they can work on bigger, more visible projects. "Large offices give you better exposure to multiple project types and sizes and allow you to work on many projects at different stages," says Maureen Intihar, a recent graduate who joined Mithun Architects. A jumbo-size firm might offer travel to overseas projects, experience in multioffice collaboration, and elaborate intern-training programs. In a medium-size firm, an architect could work on projects of substance in a modest-size environment. "All of our staff have more contact with clients and a much more varied project range," says Suman Sorg, FAIA, of Sorg and Associates, Washington, D.C., with 35 employees.

Small firms can quickly respond to changing market conditions

SMALL AND LARGE FIRMS ALIKE SEEM TO HAVE THE IMPRESSION THAT THEIR SIZE IS AWKWARD.



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but may fail if they can't afford to hire enough people to keep up with their workload or if their clients are slow to pay. The large firm may have enough people and equipment to handle the work but may fail because its size limits its ability to adapt to change, or because it can't keep enough work flowing in in a timely way.

Without adequate financial controls, costs can become unruly for the large firm. This can lead to cash-flow problems, forcing it to lay off people to survive. Principals who run large firms become concerned that they have to operate within such tight margins that they no longer have the opportunity to spend time being creative and doing the best possible design work. Another view comes from Jim C. Childress, FAIA, at Centerbrook Architects in Centerbrook, Connecticut, with 75 on staff, who says, "Ironically, architecture is more profitable if you put more emphasis on doing great architecture and not on making money." We explore the "creativity versus profit" conundrum in Part II of our series.

Expansion necessitates change. You will know when change is needed, because the evidence speaks clearly. You realize that the founding principals cannot be hands-on with every project coming into the firm, and that trusting the associates is a necessity. You see your firm's appetite for new work exceeds the principals' ability to be the sole rainmakers. You know when the firm's bookkeeping software isn't sophisticated enough; you need a human resource person who is knowledgeable about more than health insurance; and you realize you need dedicated staff for technology and marketing. When firms enter this stage, there is no universally right way to grow, but at a minimum, investments in infrastructure and technology, the empowerment of second-tier staff, and recruiting for the long-term will be required.

Many design firms suffer from the misconception that their size-related troubles are unique. We asked our surveyed firms about the challenges of their size, including both the advantages and the disadvantages. John Scott, AIA, president of CUH2A, in Princeton, New Jersey, with 397 on staff, feels his firm is "unable to fully realize the benefits of being small or large. We are nimble enough to change quickly, and large enough to qualify for any project we are interested in, but hard put to differentiate ourselves by anything other than region." Kelly Donahue, corporate communications manager at Einhorn Yaffee Prescott (EYP) of Albany, New York, with multiple offices on the East Coast and 450 on staff, says, "We are considered a production-oriented firm instead of a design-oriented firm," a disadvantage the firm has faced, she feels, largely because of their size.

Some of the smaller firms, including Garrett Smith, in Albuquerque, with a staff of nine; Krueck and Sexton, Chicago, with 14 people; and Dangerous Architects, in Chelsea, Minnesota, with five employees, cited problems with being perceived as too small to be entrusted with the next-tiered size of projects, though they feel they can handle them. Jennifer Greene, associate and marketing director at R.M.Kliment & Frances Halsband Architects, New York City, says, "We want to remain at 35 employees, but it is challenging to be able to bring in the work at the right time to keep everyone busy without overworking them."

Larger firms had different problems. Karen Cooper, a partner at Cooper Robertson & Partners, New York City, with 75 on staff, is challenged to "maintain the collegial, low-key atmosphere while striving to implement more rigorous management procedures necessary for a larger size firm." Meredith Berman, marketing director at Gruzen Samton, New York City, with 130 people, says that as a larger firm, its size forced it to take any and all work to maintain payroll. "When we were small, we were able to be more selective about which jobs we took. It is a constant balancing act between projects that are a design challenge and projects that are 'bread and butter'—those that are profitable and keep people busy." Tim Reedy, administrative director of Hardy Holzman Pfeiffer Associates (HHPA), with a total of 145 employees in Los Angeles and New York City, says, "Our size allows us to be flexible in structuring, although the longevity of staff has led to a large number of senior staff, which creates interesting organizational issues. HHPA has had to redefine what is typically viewed as 'senior.' Staff that have been with the firm for a number of years are recognized for their individual contributions to the efforts of their team, which has eased the stereotype that one needs to advance to project management to succeed and has allowed the firm to avoid having a surplus of managers."

"WHEN WE WERE SMALL, WE WERE ABLE TO BE MORE SELECTIVE ABOUT WHICH JOBS WE TOOK."

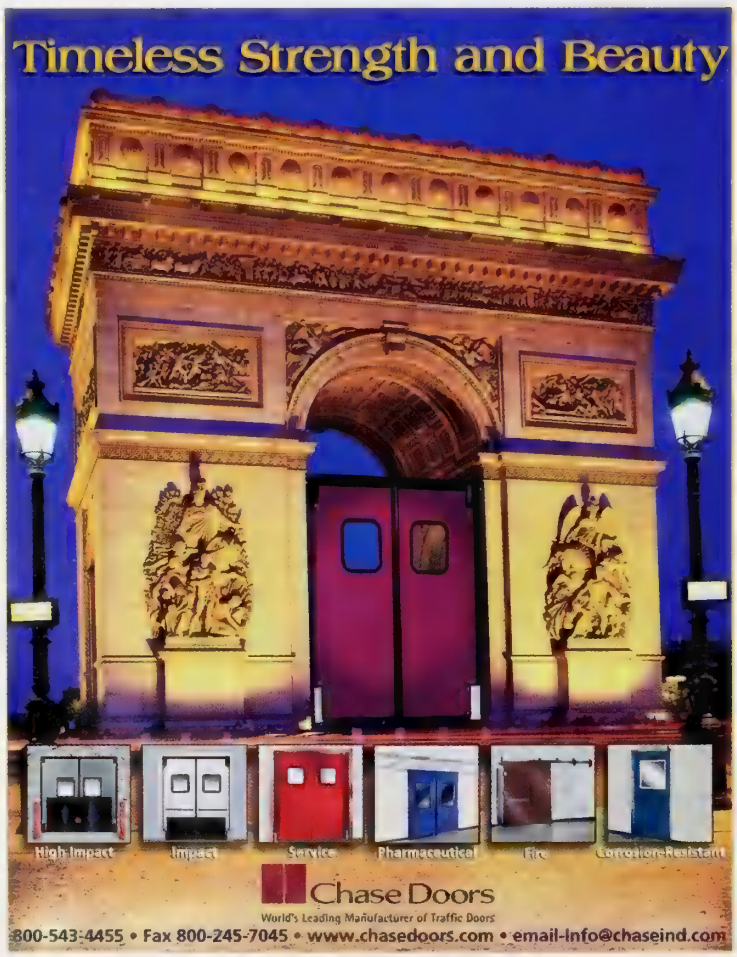

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Haws Corporation Sparks, Nevada

When we asked firms if they desired to grow from their current size, we received quite a mix of answers. Gary Desmond, FAIA, of AR7 Hoover Desmond, says, "Smaller is better for a generalist like us." Sorg and Associates, in Washington, D.C., with 35 on staff, wants to stay the size it is for design control. The size of Centerbrook Architects is based on how much work the five partners and one principal can handle and still provide clients with close, hands-on attention. Dennis M. King, FAIA, principal and corporate chairman of Harley Ellis, in Southfield, Minnesota, with a staff of 313, says, "Common business knowledge suggests that if you're not trying to get ahead and grow, you're really falling behind. When design practitioners routinely challenge this concept, they tend to view our profession as only an 'art' rather than a business."

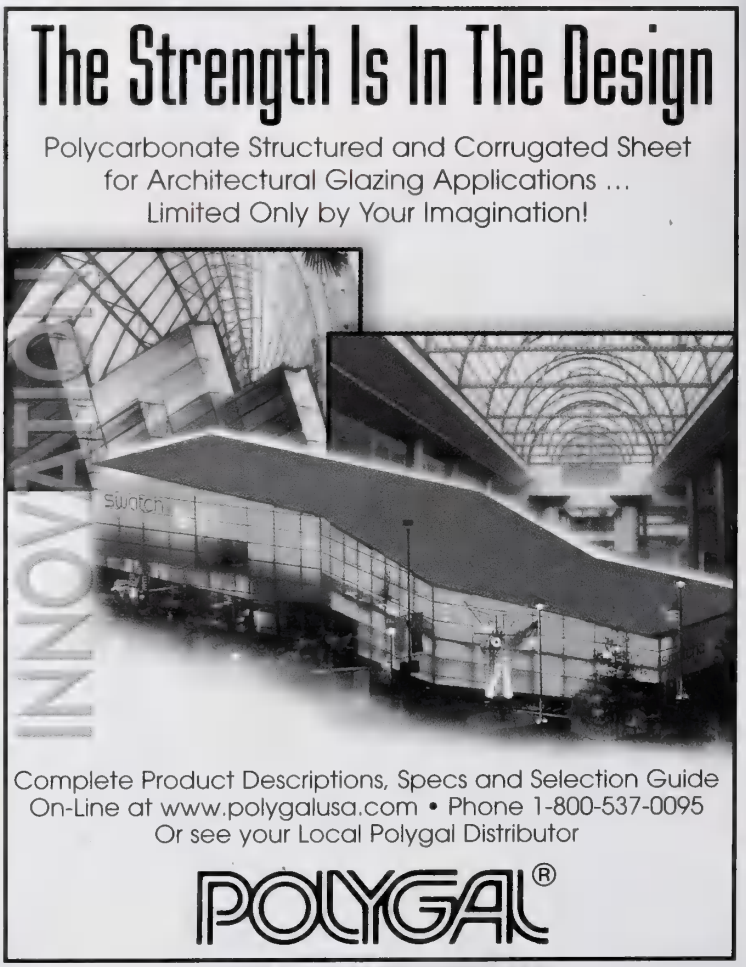
RNL Design, in Denver, with 200 employees; EYP; and Swanke Haden Connell Architects (SHCA), in New York City, with 300 employees, have all grown by acquiring other firms. According to Idy Vanderhoff, marketing manager of EYP's New York City office, the firm began with a staff of about 100 to 120 in 1989. By acquiring three firms, it expanded from Albany, New York, into eight additional locations, including one overseas, and grew to its current size of 450. SHCA acquired a New York City firm specializing in health care and then a firm in Paris. "Breadth of project types, depth of experience, and enhanced geographic diversity have been achieved in these two acquisitions," says Cynthia Kracauer, managing principal of SHCA's New York office.

SOME SAY, "IF YOU'RE NOT TRYING TO GET AHEAD, YOU'RE REALLY FALLING BEHIND."

Growing pains will always be accompanied by the excitement of change, making the future something to both prepare for and look forward to. While we may feel secure and immovable at present, the mutable tides ensure that this, too, will change. Join us next month as Part II of our series examines firm culture and size as they relate to organizational styles, creativity, profitability, and human resources. Part III, in August, will conclude our series, as we look at how architects' careers can be influenced by the size of the firm they work in. ■



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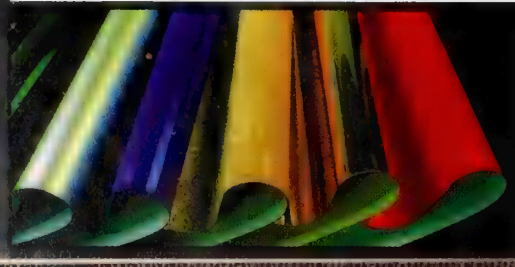


16th CENTURY COPPER

Project: **The Statue of Liberty**
Designer: **Frederic-Auguste Bartho**
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Tod **Williams** and Billie **Tsien** combine weighty materials and ethereal space to make the small **AMERICAN FOLK ART MUSEUM** into a big deal



The first-floor gallery introduces a subtle but rich mix of materials, including Italian limestone, concrete, a cherry bench designed by the architects, and green fiberglass.



By Clifford A. Pearson

The first new museum building in New York City since the Whitney opened in 1966, the American Folk Art Museum integrates the concrete athleticism of Marcel Breuer's rugged masterpiece with Tod Williams and Billie Tsien's particular command of materials and spatial choreography. Less eccentric in form than the Whitney, the Folk Art shares with it a sculptural approach to architectural space that differs markedly from the thin-skinned aesthetic of so much architecture today. Like Breuer's museum on Madison Avenue, the Folk Art is a small building with heft, a rugged urban object with a heart softened by ethereal light, flowing spaces, and graceful circulation.

Clad in panels of tombasil, a white-bronze alloy normally used to manufacture fire nozzles and ship propellers, the Folk Art's narrow 53rd Street facade acts as both veil and shield—offering peeks inside while protecting the museum in an impressive coat of armor. [For a discussion of Williams and Tsien's use of materials, see RECORD, March 2001, page 68.] With its folded and faceted metal sections of cast tombasil set off by strips of glass, the elevation is alluring in a big-city way. Hard-edged and rigorous, it reveals just enough to get our imaginations going. Fissures in the tombasil, created as the metal alloy was cast, give the facade a remarkable texture that catches daylight in ever-changing ways and brings it alive. Although industrially produced, each panel is unique, so it alludes to handwork and the nature of folk art. The result is a particularly tactile facade that—while not warm and fuzzy—begs to be touched.

Standing like the first tooth in a child's mouth, the six-story-high building (with two levels below grade) will be enveloped on three sides by Yoshio Taniguchi's addition to the Museum of Modern Art, which recently started construction and is scheduled to debut in 2005. Until then, it's impossible to judge how the Folk Art will work with its much-larger-and-still-growing neighbor. Although Williams and Tsien were among the finalists in the competition to design the MoMA expansion (and would have liked to do both projects), Williams admits that having two firms at work on the block contributes diversity to the streetscape. And he thinks highly of Taniguchi. "His work is quiet and elegant and should work well with our building," says Williams. "When the Folk Art is locked in with the Taniguchi building, it will work even better than it does now," adds Williams. "It will stand out less as an object on the street, so the interior will come as more of a surprise."

Even now the Folk Art connects with what exists of its setting: Its proportions engage the small plaza directly across 53rd Street, and its massing echoes (albeit faintly) that of Eero Saarinen's CBS Building next to the plaza. "We wanted some of the solidity and weight of CBS," explains Tsien, "while maintaining flexibility in the building's muscles."

To emphasize the blocky, sculptural nature of the building, the architects recessed the main entry behind the metal facade, instead of projecting it forward. This strategy eliminates the need for a canopy that might detract from the integrity of the facade, but it makes finding the entrance a little tricky—especially for visitors who mistake the door to the museum store for the entry to the museum.

When the museum's board of directors began discussions with the architects, it envisioned a building with two stories of offices above four or five stories of gallery space. Williams and Tsien's first key act was to convince the museum to put offices and educational facilities (library, auditorium, and classroom) below ground, opening all the above-grade space for the public. Although this shift meant less attractive offices for the staff, it freed up the best space for galleries and created the chance to animate the public areas with daylight cascading from above.

Shoehorned onto a 40-by-100-foot lot with windowless party walls on two sides, the 30,000-square-foot museum could easily have felt dark and pinched—the fate suffered by Raimund Abraham's nearby Austrian Cultural Forum, another narrow mid-block building, which opened last month. While Abraham's building has a sexy stiletto facade just 25 feet wide, it offers little more than a stack of boxy spaces inside. The Folk Art Museum, on the other hand, presents a series of remarkably rich spatial experiences, as visitors move from one gallery to another, one floor to the next. By offering a variety of stairs on each floor (in addition to the elevator and fire egress), moving the location of the stairs in plan, changing the width and character of the stairs, and carving a central atrium that changes dimensions at each level, Williams and Tsien have created one of the most fully realized architectonic buildings in recent decades. Although each floor resembles the next in plan—narrow gallery, elevator, and fire stair on one side of the atrium and wider gallery on the other side—sectional changes in vertical circulation and shifting views up and through the central atrium make every floor feel different. The architects mention the Sir John Soane's Museum in London, with its ever-changing interior perspectives, as inspiration for the Folk Art. They also cite the Mercer Museum in Bucks



A glass pyramid brings daylight to floors below grade.

Project: *The American Folk Art Museum, New York City*
Architect: *Tod Williams Billie Tsien, Architects—Tod Williams, FAIA, Billie Tsien, principals; Matthew Baird, project architect; Philip Ryan, Jennifer Turner, Nina Hollein, Vivian Wang, Hana Kassem, Kyra Clarkson, Andy Kim, William Vincent, Leslie Hansen, project team*
Associate architect: *Helfand Myerberg Guggenheimer Architects*
Engineers: *Severud Associates (structural); Ambrosino, DePinto & Schmeider (mechanical)*
Consultants: *Gregory Romine (curtain wall); Renfro Design (lighting); Ralph Appelbaum (exhibition); Pentagram (graphics); Acoustic Dimension (acoustical)*
General contractor: *Pavarini Construction*



Spaces between the cordbasil panels on the museum's 53rd Street facade reveal the dark weather barrier behind them, making it clear the metal front is suspended, not structural. To create different effects, some panels were cast on concrete, while others were cast on a steel surface.



Key pieces from the museum's permanent collection help animate open spaces such as stairwells and the narrow atrium (opposite). Galleries on the east side of the atrium (right in photo opposite) have floors made of Douglas fir that had been submerged in a lake for 100 years. Fir boards also grace the balustrade of the café on the mezzanine level and add a warming note to the central atrium (left).

EXIT



FIRST FLOOR



MEZZANINE



SECOND FLOOR

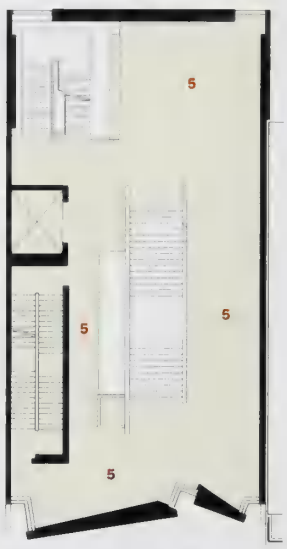
1. *Lobby*
2. *Store*
3. *Reception*
4. *Office*
5. *Gallery*
6. *Café*
7. *Janitor*



THIRD FLOOR



FOURTH FLOOR



FIFTH FLOOR



NORTH-SOUTH SECTION

1. *Lobby*
2. *Store*
3. *Store*
4. *Gallery*
5. *Mechanical*
6. *Auditorium*
7. *Offices*
8. *Classroom*
9. *Library*

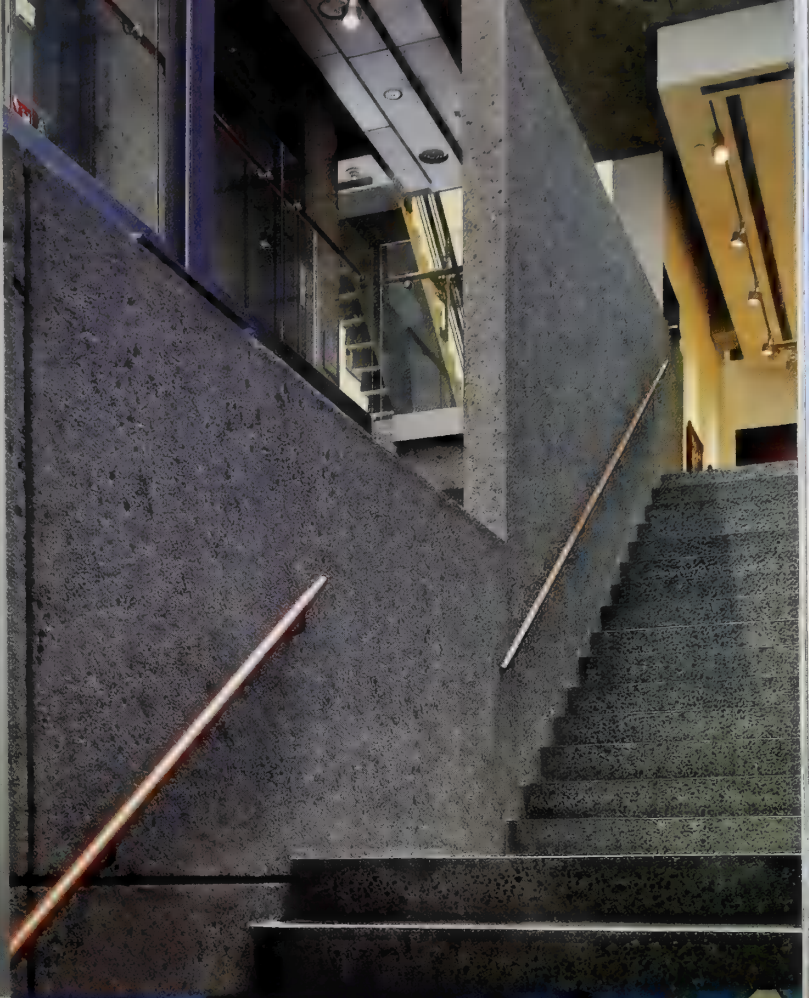


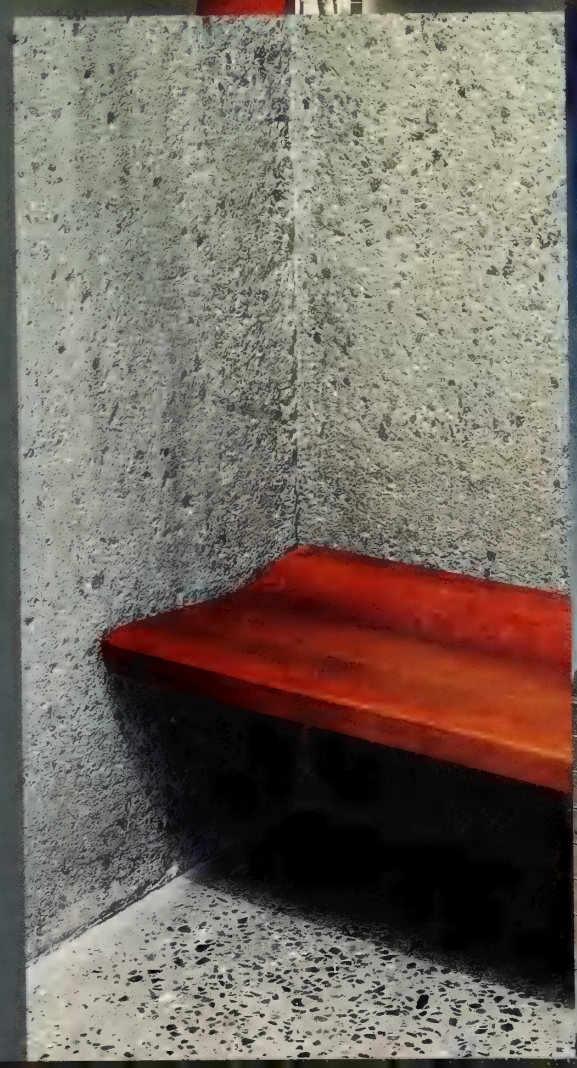
SECTION FACING SOUTH

SECTION FACING NORTH

ly changing the dimen-
ions and character
f the various stairs,
he architects made
irculating through the
nuseum a critical part
of the visitor's experi-
ence. In the north stair
(bottom right), steel-
framed display cases
help integrate art with
the architecture, while
a wide concrete stair
(top right) opens up
views as visitors climb
from the third to the
fourth floors. Almost
domestic in scale, a
wooden stair connects
the fourth and fifth
floors (right). A bench in
a landing offers a place
to rest (bottom left).



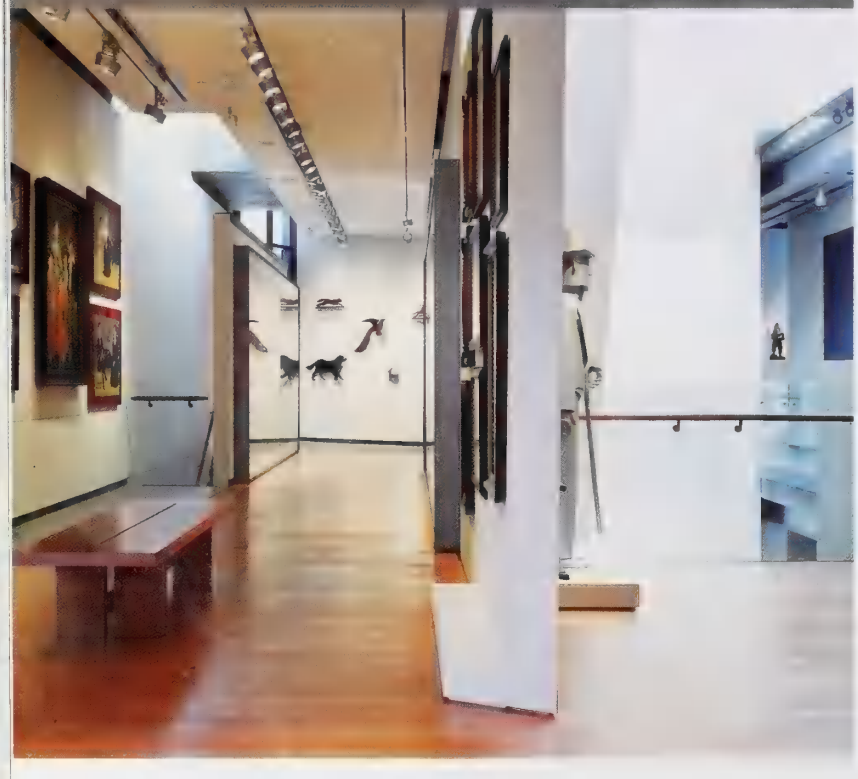








The architects used daylight in a variety of ways—sliding it in from above or the sides in galleries (below) to protect artwork, or pouring it in from a skylight above the central atrium (opposite) to draw visitors anywhere.



County, Pennsylvania, a rugged and quirky concrete structure built by tile manufacturer Henry Mercer in 1916 that shares with the Soane's Museum an inventive use of daylight and space.

"The design reflects a personal and obsessive effort to bring light inside," says Williams of the Folk Art Museum. "We wanted the personal journey through the museum to be driven by light," adds Tsien. At the start of that journey, on the museum's first floor, daylight sneaks in from three different directions—front, back, and above—slipping through cracks in the building's poured-concrete shell. And as visitors move through the museum, the direction and quality of illumination keeps changing, culminating in a shower of light from a large angled sun scoop at the top of the building.

Similarly, space undergoes a process of expansion and contraction. For example, the central atrium, which seems to be a vertical blade of space on the first floor, swells into a broad, light-filled well as a wide concrete stair takes visitors from the third to the fourth floor. The unexpected appearance of this grand staircase in the belly of the building

THE MUSEUM OFFERS A SERIES OF RICH SPATIAL EXPERIENCES AS VISITORS MOVE FROM ONE FLOOR TO THE NEXT.

comes as a wonderful piece of architectural theater, providing a place to watch what's happening on several different floors. One flight up, compression kicks in, as a narrow wooden stair—practically residential in scale—takes visitors to galleries on the south side of the top floor.

As they have done in many other projects, Williams and Tsien wield a palette of simple but elegant materials. The combination of bush-hammered concrete walls, smooth concrete floors with exposed and polished aggregate, warm planks of Douglas fir salvaged from the bottom of a lake, cold-rolled steel handrails, and Italian limestone brings to mind the interiors of Louis Kahn in its ability to complement and heighten the building's spatial richness.

Another rewarding aspect of the project is the way Williams and Tsien integrate pieces of the museum's collection with the architecture itself. Projecting from concrete walls, set at critical junctures on various floors, and animating vertical spaces, art such as weather vanes and duck decoys establishes an almost intimate connection with visitors. "We wanted to mark the journey through the museum with memory points of art," explains Tsien.

While folk art may conjure images of the quaint and traditional, Gerard Wertkin, the director of the American Folk Art Museum, states, "American folk art is, above all, art. So it was important for us as a museum to have a building that expresses this. Williams and Tsien gave us a building that elevates art. It enlightens, challenges, and instructs."

In a time of slick elevations and computer-generated blobs posing as architecture, the Folk Art Museum reaffirms the power of design conceived in three dimensions and buildings enriched with sculpted space. ■

Sources

Tombasil panels: *Tallix Foundry*
Curtain-wall installation: *Ornamental Metals Group*
Structural concrete: *Rogers and Sons*
Concrete finishing: *Global Services*
Fiberglass panels: *Fiberglass Plus*
Pietra Piasentina limestone: *Port Morris Tile and Marble*
Douglas fir flooring: *Haywood Berke*
Cold-rolled steel handrails: *Post Road Ironworks*
Cold-rolled steel exhibition cases: *Showtime Builders*
Millwork: *Gillanders Group*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.





The 820,000-square-foot complex sits on a 25-acre site landscaped by Michael Vergason (opposite). One tower houses Gannett corporate offices, while the other is for *USA Today*.

Kohn Pedersen Fox's architecture and Lehman-Smith + McLeish's interior design create a small city beyond the Beltway for GANNETT



By Andrea Oppenheimer Dean and Allen Freeman

Sprawling south of Washington's Beltway, Tyson's Corner scatters the nation's fourth-largest population of office workers and the East Coast's second-largest accumulation of retail over the once pastoral Virginia landscape. Into this aesthetically deprived environment, generated by the internal combustion engine and bottom-line architecture, comes an oasis of thoughtful—but not innovative—design funded by deep corporate pockets. Call it the shock of the highly competent.

The Gannett Corporation, squeezed for space in two leased towers in Rosslyn, Virginia, across the Potomac from the Kennedy Center, began hunting eight years ago for a site where it could build a new headquarters. Although farther away from Washington, Tyson's Corner is close to where many of Gannett's 1,780 employees live (including its chief executive officer) and has a county government with a pro-business stance. In addition, the 25-acre parcel Gannett bought offers high visibility at the intersection of the Beltway and the access road to Dulles Airport.

At first, Gannett envisioned a 30-story tower on the site's highest point. In the end, it got an expansive mid-rise at the opposite side of the site, a quasi-city in a suburb, some might say, or a palace in a park. Two slant-topped towers, 11 stories for Gannett, nine for its flagship newspaper, *USA Today*, rise in icy-glass geometries from a four-story podium overlooking grounds landscaped around a man-made lake. A parking garage attached to the back of the headquarters also distinguishes the 820,000-square-foot complex from its car-encircled neighbors.

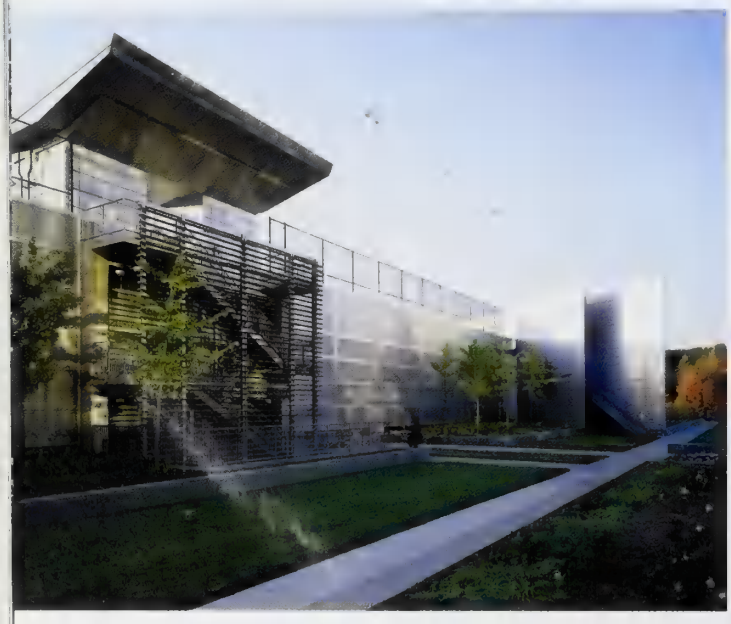
A 30-story tower on the site's highest and least-spoiled spot would have required extensive excavation and subjected the company's employees to many elevator trips. Besides, Gannett wanted separate identities for the corporation and the newspaper, flexible workspaces that could accommodate a 20 percent growth and changes in organization, two newsrooms, and a host of employee amenities to compensate for services left behind in the city. The program suggested a pair of mid-rises and a large podium base.

When Douglas Hays of landscape architect Michael Vergason's office proposed moving the building to the flat end of the property, Kohn Pedersen Fox (KPF) design principal William Pedersen, FAIA, recognized a no-brainer. "You learn early in architecture school to build on the worst part of your site and look at the best part. We flipped the building around, and everything fell into place," Pedersen says.

Contributing editor Andrea Oppenheimer Dean writes about architecture and design from Washington, D.C. Allen Freeman is a senior editor of Preservation *magazine.*

Project: *Gannett/USA Today Headquarters, McLean, Virginia*
Architect: *Kohn Pedersen Fox Associates—William Pedersen, FAIA, Robert L. Cioppa, FAIA, Michael Greene, AIA, Jill Lerner, AIA, principals; Jerri Smith, AIA, David Lukes, Roger Robison, AIA, Takatomo Kashiwabara, AIA, team leaders; Vlad Balla, Gertrudis Brens, Andrew Cleary, Jason Gomez, Adolfo Guerrero, Miranti Gumayana, Eric Howeler, Ming Leung, Nicholas Martone, Victor Pechaty, Audrey Torina, Mark Townsend, Jason Wright, team members*
Interior designer: *Lehman-Smith + McLeish—Debra Lehman-Smith, James Black McLeish III, Terese Wilson, Ron Fiegenschuh, Richard L. Bilski, AIA, Rebecca Montesi, Carmen Epstein, Filip Simpson, Lisa Toomey, project team*
Engineers: *TOLK (m/e/p); CBM Engineers (structural); Dewberry & Davis (civil)*
General contractor: *The Clark Construction Group*


USA TODAY





Glass fins on the reflective facades help the building cut a dramatic profile from the highway (top). But the complex mostly turns inward, to an artfully pastoral landscape with a courtyard and pond (opposite, top and bottom right; this page, bottom right). A 2,000-car garage (opposite, bottom left) just west of the office building reduces the amount of surface space used by cars.

Unlike grand buildings of another era, there's no heroic portal here. Visitors park in a small lot adjacent to the building, take in the attractive landscaping, then enter a glass corner of the podium to find a vast, two-story lobby. A 10,000-square-foot entrance hall may seem a corporate indulgence, but Pedersen says large tour groups need to assemble there. Debra Lehman-Smith, of interior designers Lehman-Smith + McLeish,

"YOU LEARN EARLY IN SCHOOL TO BUILD ON THE WORST PART OF YOUR SITE AND LOOK AT THE BEST," SAYS PEDERSEN.

attributes the size to corporate largesse, a place for "massive black-tie fundraiser dinners for 400." Visitors ascend a stainless-steel, cable-supported, riserless stair, the lobby's sculptural eye-catcher. Employees, meanwhile, dash in from the garage and along the lobby's edge to Gannett's elevators or down a wide, long expanse to *USA Today*'s.

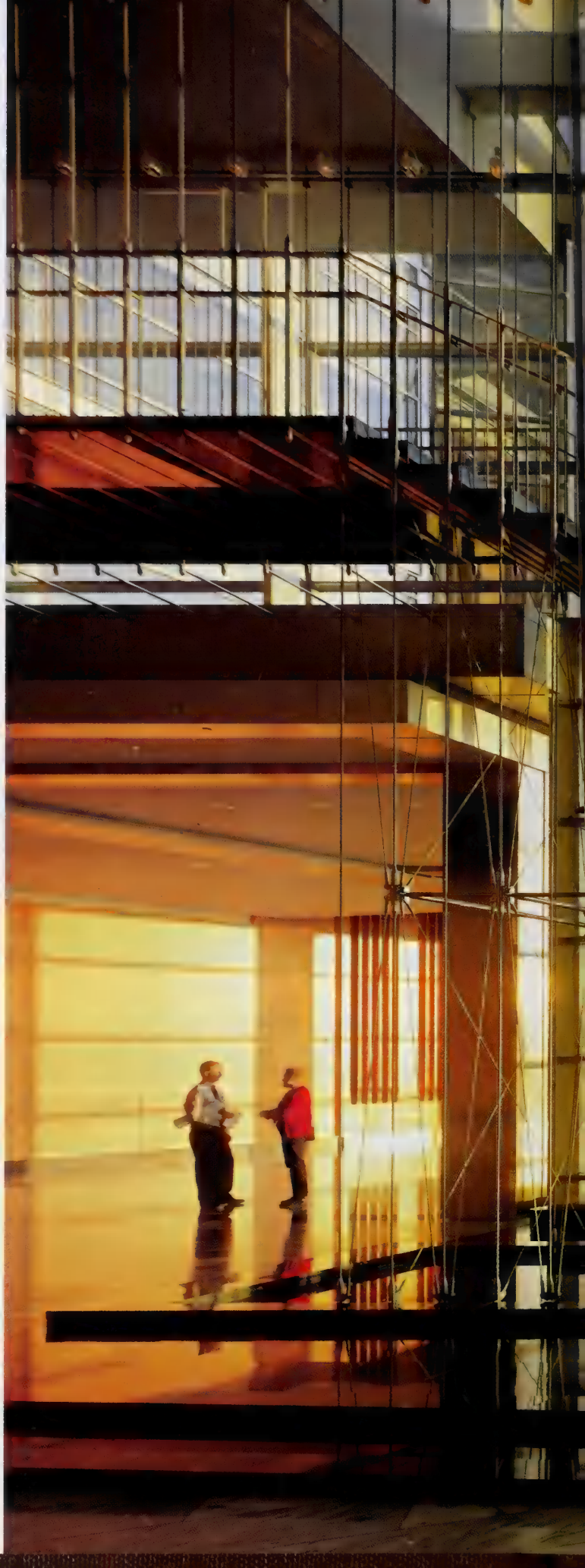
Recalling the power architecture of the 1950s and '60s, when corporations built luxurious headquarters in the suburbs, the Gannett complex offers generous employee amenities, such as a dining area open-

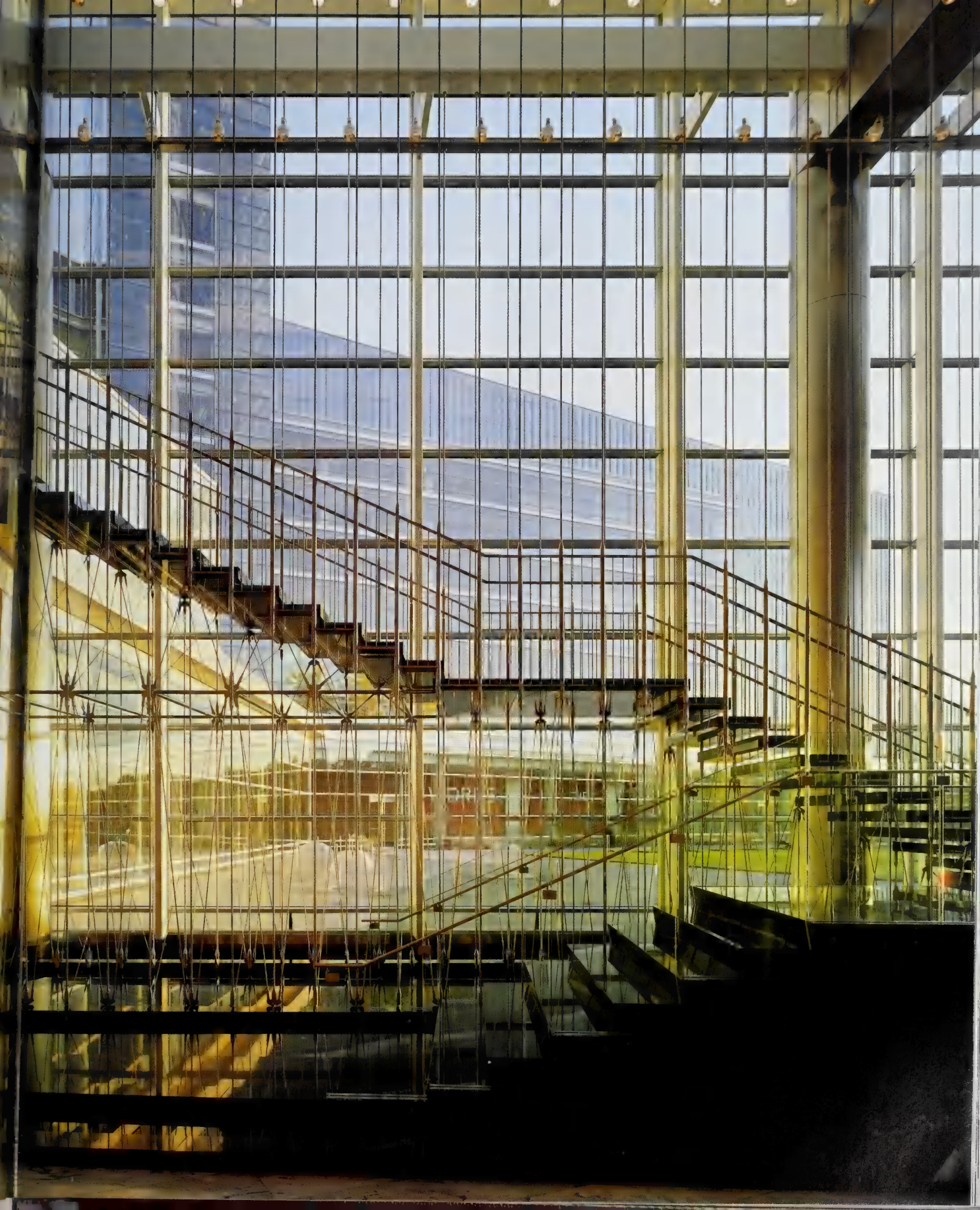


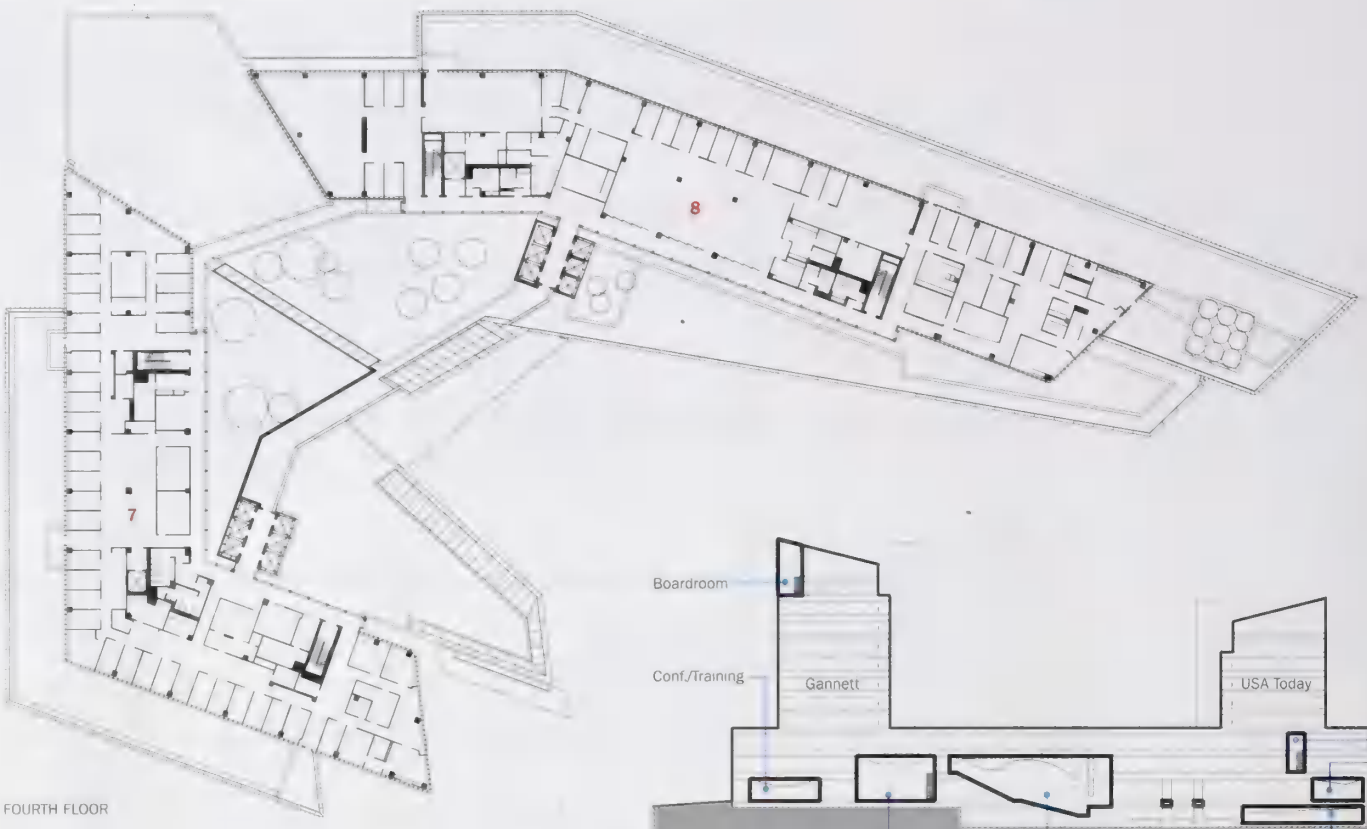


Instead of surrounding the building with surface parking, the architects attached a parking structure to the back of the complex (above foreground). A 10,000-square-foot entry hall (right) can also serve as a venue for gala events.



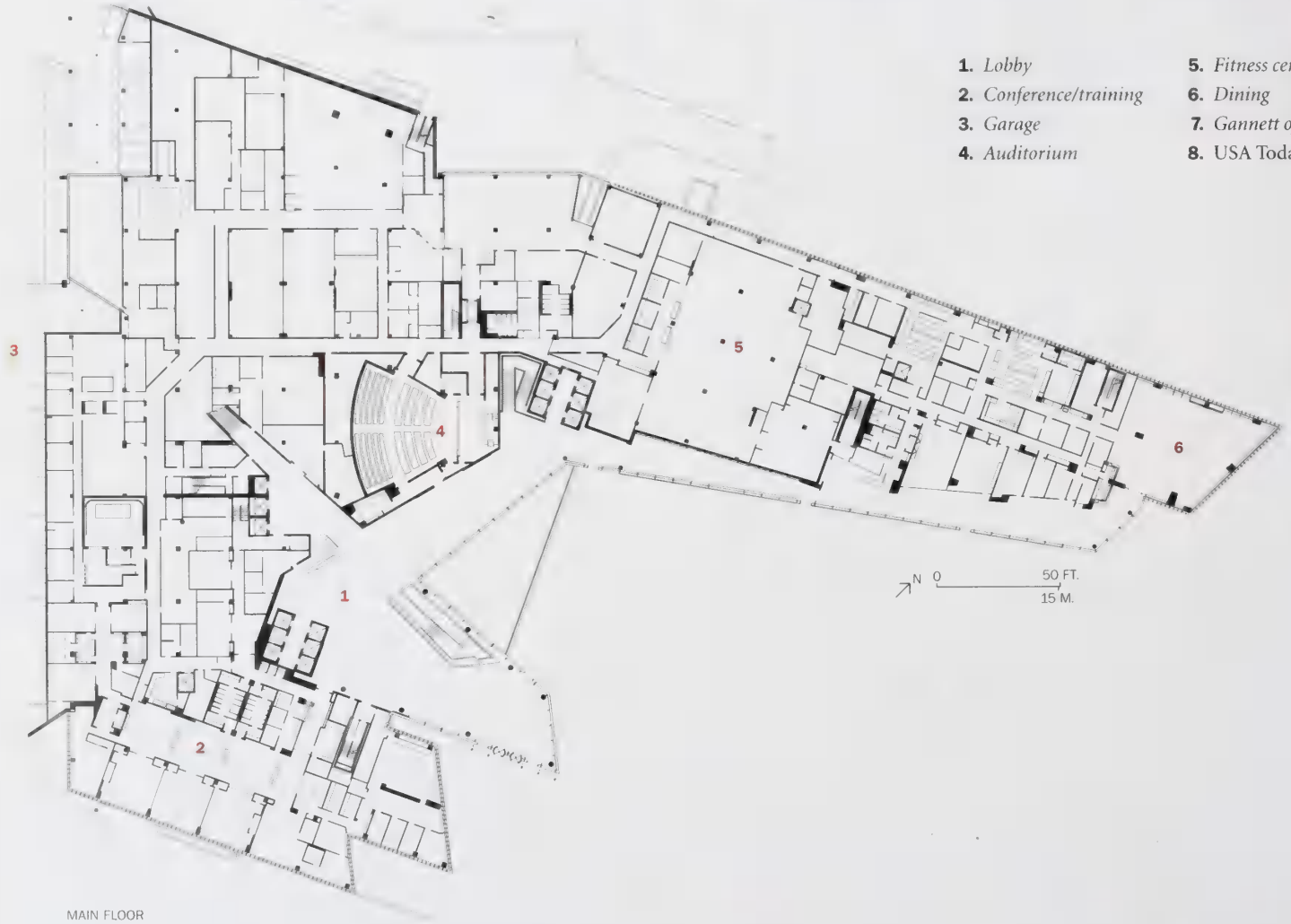






FOURTH FLOOR

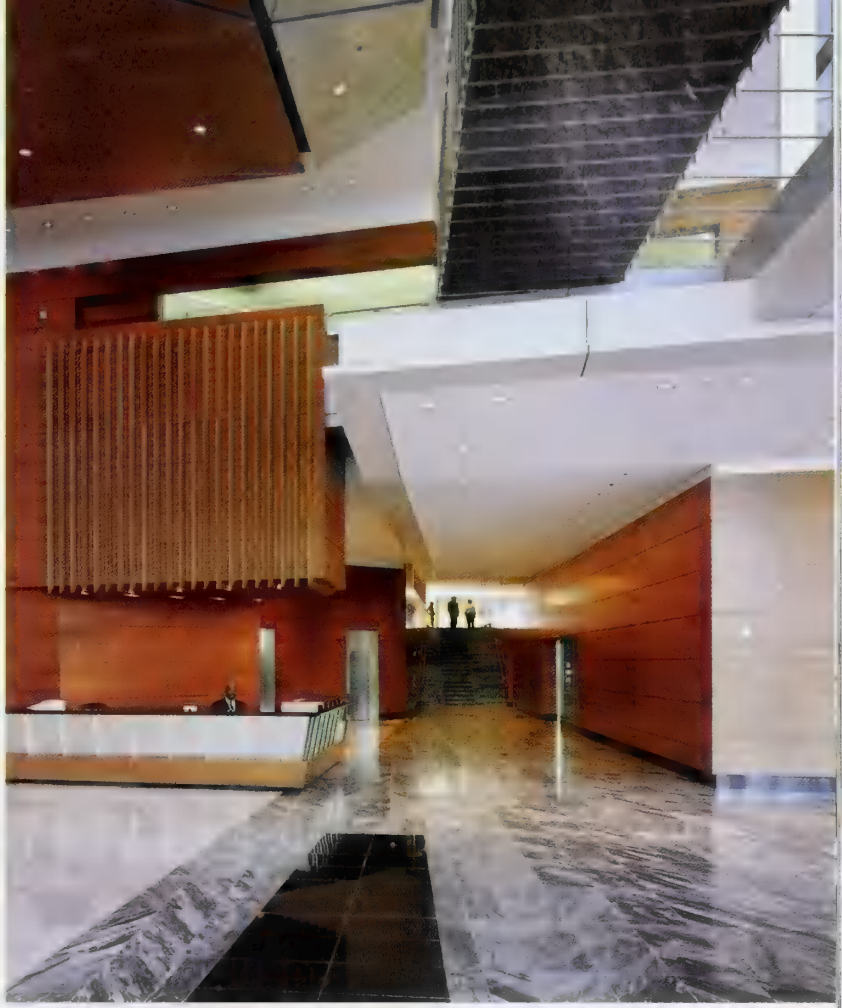
NORTH-SOUTH SECTION



1. *Lobby*
2. *Conference/training*
3. *Garage*
4. *Auditorium*
5. *Fitness center*
6. *Dining*
7. *Gannett offices*
8. USA Today *offices*

MAIN FLOOR





ing onto a terrace; 24/7 takeout and gourmet menu; a well-equipped health club stretching out on two levels; a tennis court on top of the garage; jogging paths around the lake; and an extensive program of contemporary art integrated with the architecture.

Pedersen's governing idea was to create "a small city with a focus, a place of gathering." Using standard, concrete, flat-slab construction, with 30-foot bays, he folded the podium into an irregular, south-facing U-shape. Dining, amenities, and work spaces fill the podium and partially wrap around a central courtyard. Floors are never more than 70 feet across, allowing daylight to penetrate nearly all work spaces. (Too much, say newsroom denizens; a fix of shades is in the works.)

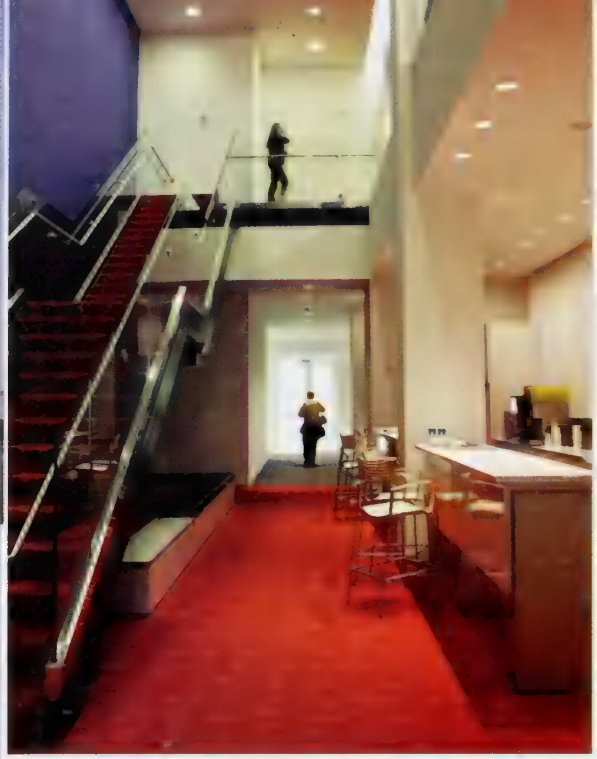
The main corridors in the podium occupy the U's inner periphery and are clad in untinted, low-E glass that offers views of the courtyard, stone terraces, lake, and verdant hillside. From those exterior vantages, the clear glazing turns corridors into linear stages across which employees and visitors move: Edge building circulation comes to Edge City. Translucent elevator towers, also placed within the U, tie together some rather complicated facade geometries and make the building dance a little.

The majority of the cladding is green reflective glass adorned by vertical 10-inch-wide glass fins set at 2.5-foot intervals. Created with the help of glass artist Jamie Carpenter, the fins add depth, texture, and—in the right light—sparkle. But the shiny facades don't significantly distinguish themselves from those of Gannett's more prosaic neighbors. While architects of buildings at Tyson's Corner typically treat exterior materials as wrapping paper, KPF modulated the Gannett-*USA Today* palette carefully, and Debra Lehman-Smith's firm wove the architectural shapes, transparencies, and translucencies into the less-public realms of the complex's interiors.

A 20,000-square-foot, double-height suite in the base of the

Ample daylight and an integrated program of commissioned artworks (below) animate circulation spaces, such as the main lobby (above) and the gathering area in front of the 300-seat auditorium (above left).





Common facilities, including a two-level fitness center (left), dining facilities, auditorium, and training and conference rooms, occupy a single podium, while Gannett and *USA Today* (below) each get their own office tower.



Gannett tower houses conference, training, and client-dining spaces. The materials include sycamore and various types of glass; the walls are lacquer; the floors, marble. The aesthetic is corporate-slick but tasteful.

An auditorium that seats 300 "hangs in the belly of the building," as Lehman-Smith puts it, between the two towers. You enter at the side of the raked, 8,000-square-foot space at a wide cross aisle. Theater seating occupies the sloped floor in the back half of the hall; workstations line up closer to the stage. The split arrangement of the floor, also expressed by curving strips of sycamore on the ceiling, makes small-scale briefings and training sessions close to the stage more intimate, while accommodating larger events, as well.

The two 100,000-square-foot newsrooms, a cluster of news conference rooms, and the editors' glassed-in offices occupy the podium's second and third floors on the *USA Today* end of the headquarters. Large, flat-panel TV screens on the walls, and platform floors with wiring underneath, remind visitors that Gannett is a multimedia giant and that it anticipates changes in technology.

The offices on the *USA Today* side are more casual and open than those for Gannett executives, whose culture is more buttoned down. A minimally adorned suite for the corporation's board occupies the symbolically important position on top of the taller tower, and the designers let the views of the building's own pirouetting geometries create the drama. You reach the suite via a processional marked by art works by Lita

FLOORS ARE NEVER MORE THAN 70 FEET ACROSS SO OFFICES AND NEWSROOMS GET PLENTY OF DAYLIGHT.

Albuquerque. Nine glass-topped boxes, embedded at regular intervals in single file along the 11th story's marble floor, are filled with blue pigment and lit from inside, and their surfaces are inscribed with fragments of poems. They lead to a 5-foot blue orb, also by Albuquerque, one of five artists commissioned by Gannett for site-specific works in the building. The art program's theme, says Lehman-Smith, "is the collision between fine art and media art." All of the artworks—by Albuquerque, Ed Ruscha, Joseph Kosuth, Jaune Plensa, and Tom Phillips—combine images and words, the tools with which Gannett built its communications empire.

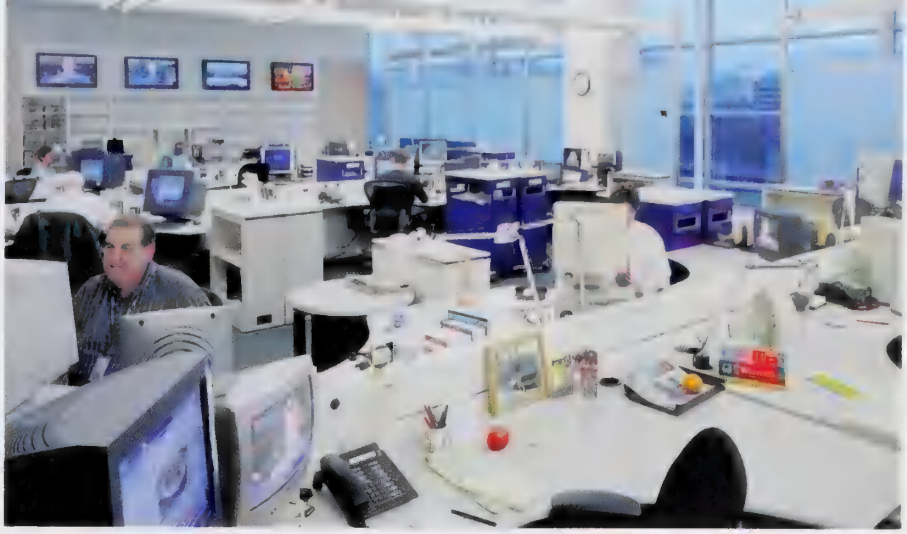
Gannett executives got what they wanted: serious corporate-park architecture that harkens back to Gordon Bunshaft's mid-1950s Connecticut General Headquarters. "They see the company as the information provider for the new millennium and wanted a facility that said they're on the cutting edge of communications," says Rick Bilski, Lehman-Smith-McLeish's project architect. If, from the perimeter corridors or offices that face the courtyard, you focus on Michael Vergason's landscape, or if you look to the distant horizon from one of the top stories, you can ignore the ragged context of Edge City. A comment by KPF's project architect, Jerri Smith, AIA, tells the tale: "I don't think the neighboring buildings are part of what this project was about." ■

Sources

Metal-and-glass curtain wall: *Custom by Harmon*
Aluminum windows: *Baker Architectural Metals*
Reflective glass: *Viracon*
Clear laminated glass: *John Depp*
Cherry paneling: *Brochstein's*
Fabric panels: *Architectural Fabric Systems*
Venetian plaster: *Guilders Studios*
Carpet: *Constantine*
Office furniture: *Vitra*
Executive office furniture: *FCI*
Task lighting: *Artemide*

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The complex provides both open-plan newsrooms (right) and private perimeter offices (below). Steering clear of the deep floor plates found in many other office buildings, the designers brought plenty of daylight—sometimes too much, say workers—to office spaces.





The vestibule of the former town house reflects Annabelle Selldorf's distillation of modern and traditional motifs.



Annabelle **Selldorf** brings the sensibility of Mies and Loos to the conversion of a Beaux Arts town house into the **NEUE GALERIE** in New York City



By Suzanne Stephens

You could almost call it invisible architecture. Annabelle Selldorf's approach to designing spaces for the display of art is so subtle, it reaffirms the essence of architecture found in what Mies van der Rohe called "beinahe nichts"—almost nothing. She is known as an architect who has deftly manipulated proportion, materials, detailing, and lighting to create art galleries and artists' lofts and other residences known for their restraint and clarity. In this recent conversion of a large New York town house into the Neue Galerie, a museum for early-20th-century German and Austrian art, the contents—painting, sculpture, and art objects—stand out dramatically against mute yet luminous environments. Selldorf has also isolated the major architectural features of this palatial landmark, designed in 1914 by Carrère and Hastings, so the spiraling marble and wrought-iron stair, the domed skylight, and the marble and wood wainscoting of the major rooms emerge in full relief. The difficult combination of restoration and modernization is intended to look effortless: Selldorf did not try to make an aggressive architectural statement that would compete with the museum's collection, which includes paintings by Gustav Klimt and Egon Schiele, and furnishings and objects by Adolf Loos, Kolomon Moser, and Josef Hoffmann. At the same time, she did not try to create a white-box, Minimalist backdrop for the work on view nor, conversely, to bring back the total turn-of-the-20th-century domestic splendor of this mansion built for industrialist William Starr Miller. "You continually make judgments about how to keep the entire work coherent and intact yet also serve the purposes of exhibiting art," Selldorf remarks. "It was a painstakingly discreet renovation."

The idea of the Neue Galerie was initiated by Serge Sebarsky, the late art dealer and collector, and Ronald Lauder, chairman of Estée Lauder, who is a collector himself as well as the former ambassador to Austria. In 1994, Sebarsky bought the 80-year-old structure—itself a

Project: *Neue Galerie New York, Museum for German and Austrian Art, New York City*
Owner: *Ronald Lauder*
Architect: *Selldorf Architects—Annabelle Selldorf, principal; Randy Goya, Anne Nixon, project managers; Gretchen Stoecker, project architect; Leander Grayson, Karen Lu, project team*
Engineers: *Gilsanz Murray Steficek (structural); Jack Green Associates (MEP)*
Lighting: *George Sexton Associates—George Sexton and Brian McIntyre*
General contractor: *Clark Construction Corporation*
Waterproofing: *Associates Construction Consultants*





Beaux Arts reprise of early-17th-century houses enclosing the Place des Vosges in Paris—from the Yivo Institute for Jewish Research, which had occupied it for 40 years. After Sebarsky's death in 1996, Lauder reportedly spent $20 million to buy the house from the Sebarsky Foundation and renovate it to accommodate a 23,000-square-foot museum with 4,300 square feet of exhibition space. Selldorf, who at the time had recently restored an Italian Gothic palazzo in Venice for an art foundation, was brought in to see what she could do. It needed work. "The whole concept for the museum evolved through ongoing conversations with Ronald Lauder; the museum director, Renée Price; and the curators," Selldorf says. "We didn't want to restore it in such a way that it seemed overdone and unnatural." One of the first decisions was to bring back natural light into the stair hall by removing a roof that had been placed over the domed skylight. Selldorf installed a structural glass skylight above the dome, which also serves as a small outdoor terrace for the museum's fourth-floor offices.

The house's largest public rooms were situated on the second floor, or piano nobile, where a surfeit of marble trim and oak wainscoting confronted Selldorf. This floor was chosen to showcase the permanent collection of Austrian art, while German art and objects were placed upstairs on the third floor, along with galleries for temporary exhibitions. In the former music room on the second floor, Selldorf kept the marble but removed mirrors so that the paintings could be mounted against white plaster panels edged with gilt molding. With the insertion of a gridded, backlit, glass-paneled ceiling, the gallery has a luminous quality that brings out the deeply saturated colors of the paintings. The former library on the second floor, lined in boiserie, displays design objects of the Wiener Werkstätte and related ateliers in bold wood vitrines inspired by ones in the Victoria and Albert Museum in London.

On the third floor, the quiet palette of white and gray painted drywall creates a neutral backdrop for mounting art works. Although the original parquet could be kept on the second floor, new oak planks, 4 inches wide, were installed on the third. The luxurious sheen of these horizontal planes brings Adolf Loos to mind, just as the linear stretches of gridded steel grills for return air are reminiscent of Josef Hoffmann.

Fitting out the museum with ducts and returns for the HVAC while keeping close to the ceiling heights of the town house was a headache. As Selldorf put it, she needed to "snake ductwork down the walls and former chimneys" and also create an enormous mechanical space on the roof. Finding room in the house for a bookstore and café on the ground floor, plus offices and storage on the fourth and fifth, "was like cutting holes in the air," Selldorf notes, "but in the end it was quite efficient." In designing the 70-seat Café Sebarsky on the ground floor, Selldorf left the oak paneling of the former dining room facing Central Park intact. But to shift the mood more toward Austria and Germany, Selldorf filled the café with reproductions of chairs Loos had Thonet build to his own specifications for his famous Café Museum in Vienna in 1899.

Although Selldorf states, "It's important not to over-restore," she doesn't feel that the architect's role should be passive. New needs and idiosyncratic spaces have to be dealt with. For example, a white-glass-pan-

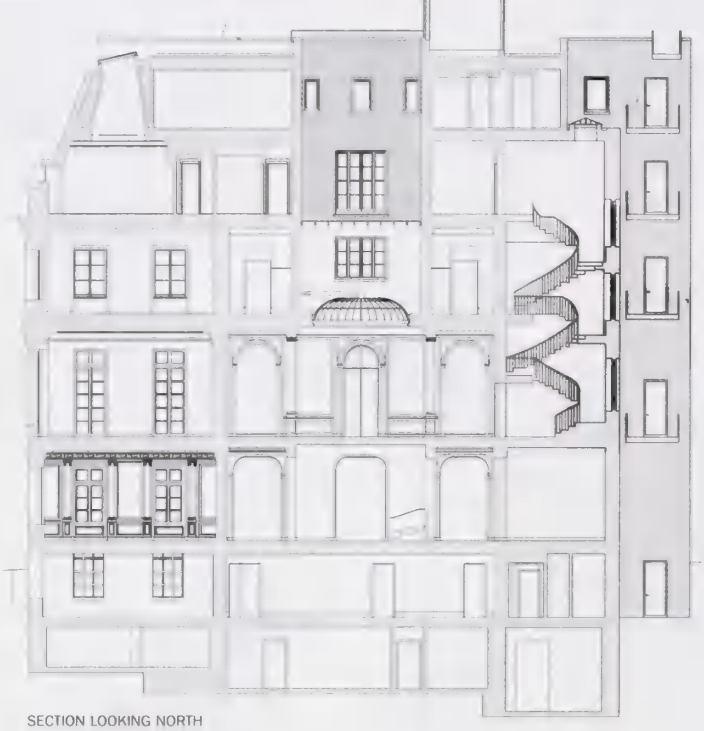




A new white-glass-paneled elevator (opposite, far left, and above right), illuminated by an Adolf Loos pendant lamp, slips beside the main stair (opposite, right). Ceiling fixtures in the café and bookstore (below left and right) are based on Josef Hoffmann designs.



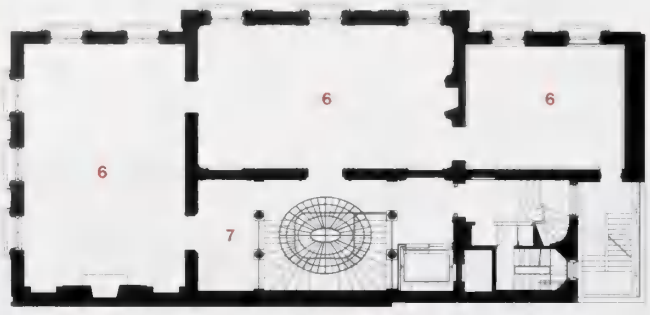




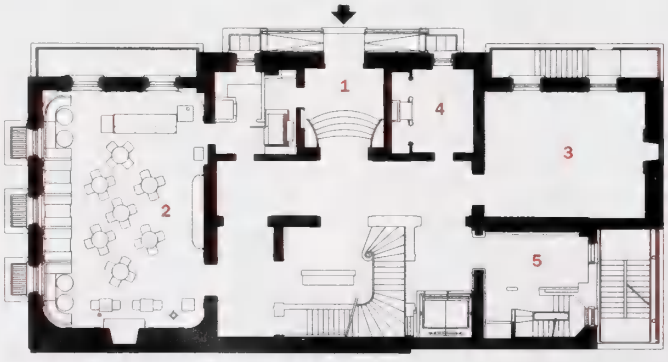
SECTION LOOKING NORTH



FOURTH FLOOR

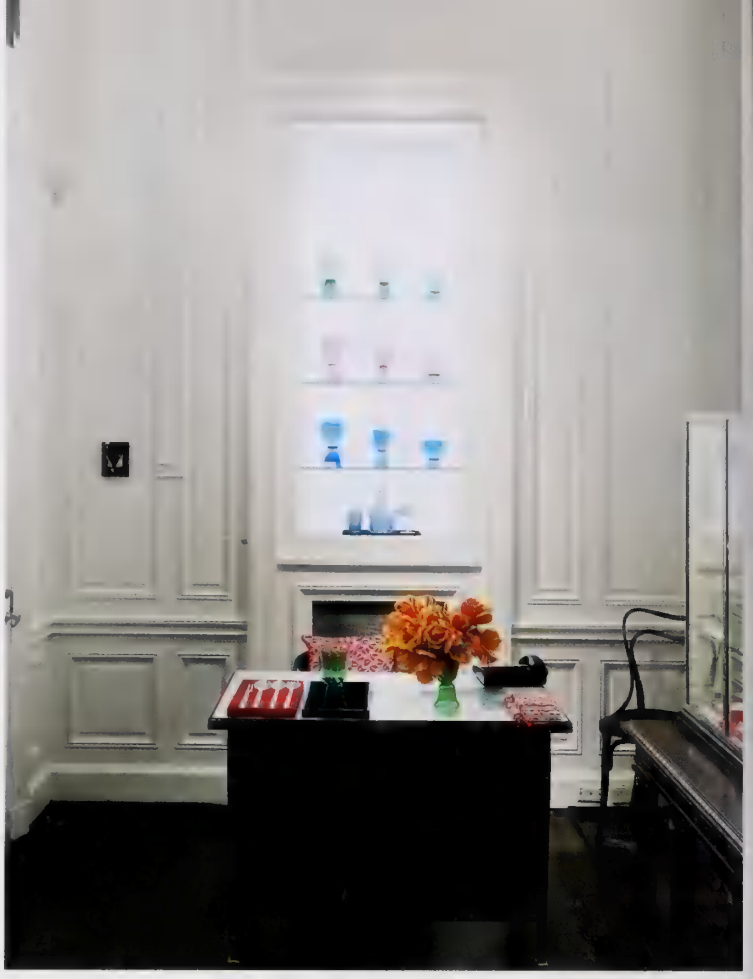


SECOND FLOOR



FIRST FLOOR

N 0 10 FT. 3 M.



In the design shop, vases by Josef Hoffman are illuminated in the vitrine above a Hoffmann desk. The mantlepiece clock by Adolf Loos is part of the permanent collection.

1. *Entrance*
2. *Café*
3. *Bookstore*
4. *Shop*
5. *Coatroom*
6. *Permanent exhibition*
7. *Hall*
8. *Administration*
9. *Terrace with glass floor*
10. *Office*
11. *Conference room*





On the second floor, the former library now displays objects from Wiener Werkstätte and related ateliers in custom wood vitrines, illuminated by recessed track lighting.

The third-floor galleries are covered with new oak planks (above), dramatizing furniture by Loos and stainless-steel return-air grills (below).



eled elevator cab is tucked into a space next to the main stair. Selldorf resisted the idea of inserting an attention-getting historicist or modern mechanistic device there. "Instead of a spectacle, we made the elevator a white, silent, shiny Miesian box, to look as if it had always been there, unless you thought about it," she explains.

Like Mies van der Rohe and Adolf Loos, Selldorf emphasizes stringency of line and proportion, offset by luxurious materials. In this process of distillation, the architectural firm devoted a large amount of time overseeing the execution on-site. "You've got to be finicky," Selldorf advises, adding, "I had a dedicated team of architects—stubborn about the craft and the detail." The result is a highly disciplined work of art that recaptures the spirit of the old New York town house, but allows the German and Austrian artifacts to emerge brilliantly and clearly from their elegant backdrop. ■

Sources

Roof: *Laurenco Roofing (built-up); Premier Roof (installation standing-seam copper roof)*
Windows (wood): *Historic Windows*
Steel: *O'Keefes*
Glass: *Gray Glass (low-iron); Century Glazing (structural)*
Skylight: *Atlantech Systems*
Cabinetwork and custom woodwork: *Budd Woodworking; Donadic Woodworking; Michael Gordon*
Wall coverings: *J. Edlin Interiors; Sam Kasten Handweaver (fabric)*
Exhibition lighting: *Nulux*

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A second-floor gallery features *The Dancer* by Gustav Klimt and a Koloman Moser table.



Concrete stelae evoke archaic antecedents (this page). The entrance court (opposite, top) will seem less imposing if a Forum—envisioned by Schultes as a dense complex of open-air public spaces—is ever built in front of it.

CRITICISM In Axel Shultes' controversial struggle to realize Germany's new CHANCELLERY there are lessons for American public building design





By James S. Russell, AIA

Wags describe Berlin's new chancellery as a "washing machine." Indeed, not a few people see these offices for united Germany's chief executive as almost ludicrously bombastic. But if a deeper consideration of the chancellery's architecture does not fully allay these glib assessments, there is much to be learned about how we use design in important public contexts and how architecture can represent national values.

Americans tend to prefer architectural modesty in public buildings in order to symbolize the aspiration (if not the reality) of small government. Thanks to the tragically successful use of architectural monumentality and theatricality as propaganda by Hitler and his chief architect, Albert Speer, today's Germans maintain an aversion to imposing edifices and to a design rhetoric of power. The problem in either case is how to turn a negative quality into a positive architectural expression.

Architects wring their hands over the diminished role of design in the public realm, but conditions will not improve without considering what public architecture says—the human or civic values it represents. Axel Schultes and Charlotte Frank, of Axel Schultes Architekten, in Berlin, grappled with the antimonumental urge in their design for one of united Germany's new centers of power: the 690,000-square-foot Berlin Chancellery, which returned to Berlin last year after a half-century absence.

The chancellery's east facade—its most public side—expresses an architectural ambivalence for all to see. The 120-foot-high cubic central block rises imposingly above embracing office wings. But the casting of the building's concrete shell appears to have frozen a kind of explosion in which the top of the cube flares upward in a tentlike arc, rent with great curved openings. Looking as if they were flung centrifugally out from within the chancellery's metal and glass walls, a small herd of piers—vestigial Classical columns, maybe—dot the forecourt and a recessed fifth-floor balcony.

This is how Schultes has explained these disparate gestures: "We had wanted the new chancellery in the Spreebogen to be a place of balance—balance and contrast. Heavy and light, closed and open, intimate and public—a stimulus to the political imagination of governed and governors alike." The trees sprouting 46 feet above grade in the top of the piers are intended to add a touching Romanticism, à la Karl Friedrich Schinkel. They "temper above all the stiff ceremony of our *cour d'honneur*," Schultes has written, "touching a chord of German yearning … a yearning for the south, for the fountains of all our cultural experience."

Schultes ultimately fails to reconcile the opposites he so colorfully aspires to balance. In speeches, articles, and interviews, he has

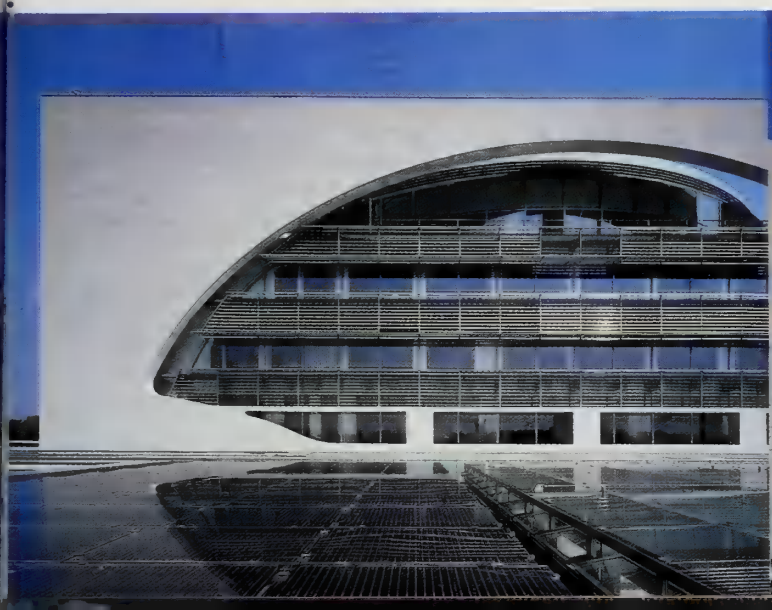
Project: *Berlin Chancellery*
Client: *Bundesrepublik Deutschland*
Architect: *Axel Schultes Architekten—Axel Schultes, Charlotte Frank, project design; Christoph Witt, Philipp Heydel, project management; Monika Bauer, Martina Betzold, Andreas Büscher, Stephan Ernst, Roland Frank, Christian Franke, Marc Frederking, Holger Gantz, Paul Grundei, Christian Helfrich, Matthias Hiby, Ayse Hicsasmaz, Caspar Hoesch, Frithjof Kahl, Markus Kenkmann, Arndt Kerber, Margret Kister, Hartmus Kortner, Hans Krause, Gerhard Münster, Cornelius Nailis, Anna Pfeiffer, Martina Pongratz, Klaus Reintjes, Andreas Schuldes, Luzt Schütter, Christian Werner, Jost Westphal, team*
Engineers: *GSE; Saar Enseleit und Partner; Schlaich Bergermann und Partner (structural); Schmidt Reuter Partners (mechanical, building ecology); R+R Fuchs (facade)*
Consultants: *Akustik-Ingenieurbüro Moll (acoustics); Licht-Kunst-Licht (lighting); Lützow 7 (landscape)*
Contractor: *Stahlbeton*

Master plan's monumentality: The east elevation (above and below left) faces a court of honor for arriving dignitaries and acts as a TV-news backdrop (below right). The western garden facade (opposite, top) is similar. Within the concrete frame, the horizontal division of each facade discreetly describes the building's organization. Below grillwork that obscures a floor devoted to various high-security functions are two levels of meeting rooms and reception spaces. Above the grilled entablature, upper floors are devoted to the chancellor's offices. They pick up panoramic views to the north and south through enormous cutouts





(below left). Ironically, Schultes's own winning master plan created for a 1995 competition for the new government sector (page 235) adds to the sense of severity. He conceived of a band of ministries—including the chancellery—that would cross the Tiergarten Park over the Spree River and into the former eastern sector, where it was supposed to engage the existing city pattern. Almost all of what is being built ended up in the park, and it is impenetrably fortresslike (below right), the opposite of what was intended. The effect is exacerbated by a security fence erected over Schultes's objections in an adjacent public boulevard.



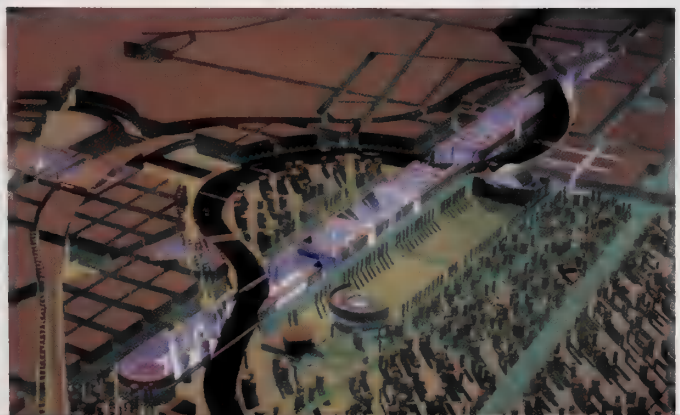




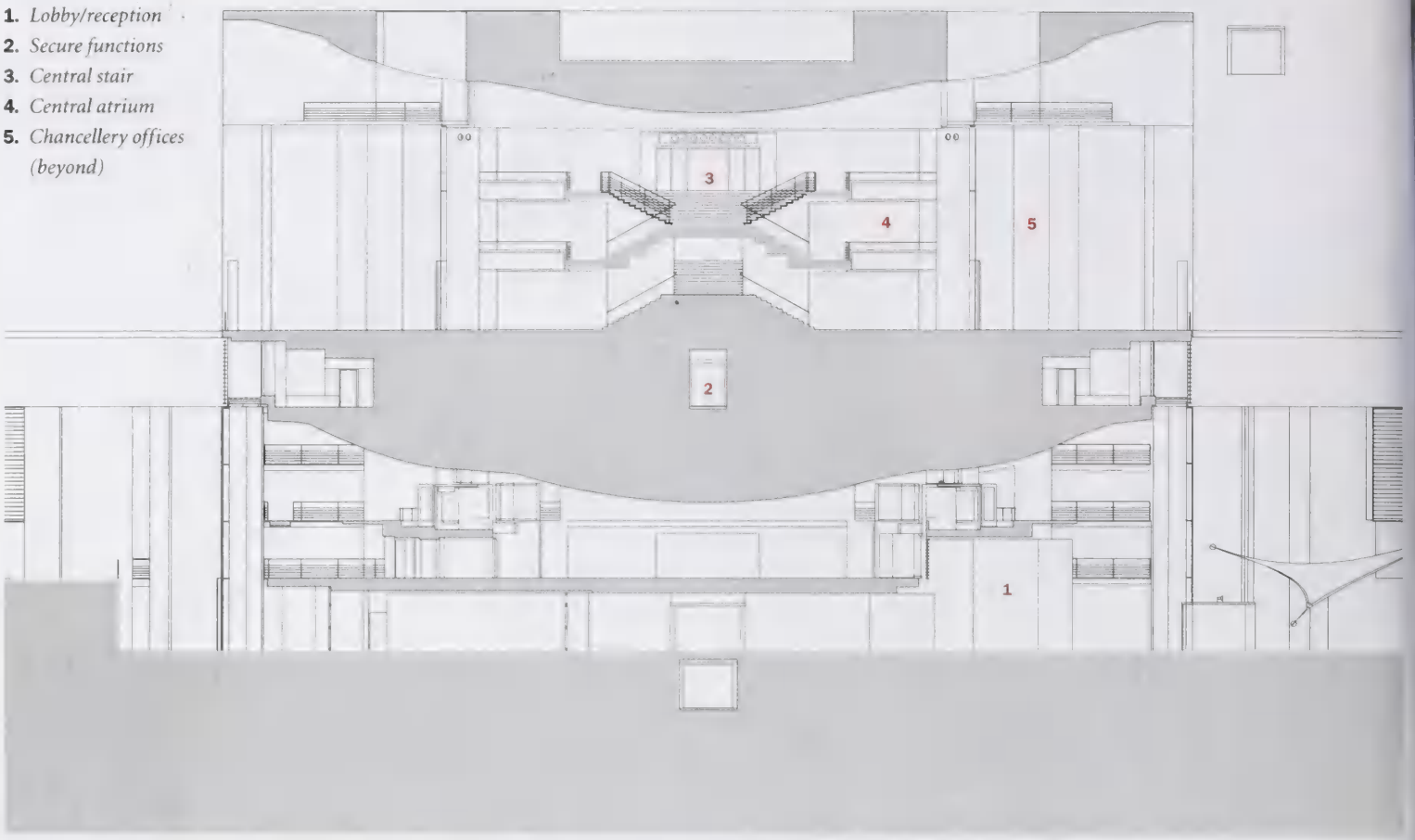
Secret garden: The enclosing office wings dissolve into an open pavilion at the edge of the river (opposite and middle right). Its high, long roof frames a panorama across the city's historic Tiergarten. While likely to be among the structure's least used spaces, it ranks as the most sublime (above), aided by the garden, which stretches perhaps a quarter of a mile across and beyond the Spree River (bottom right) to the radius end envisioned in Schultes's original master plan (below).







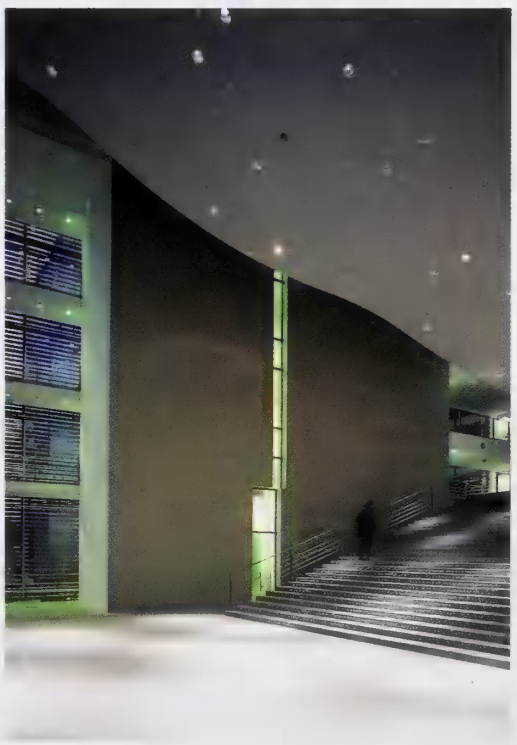
1. *Lobby/reception*
2. *Secure functions*
3. *Central stair*
4. *Central atrium*
5. *Chancellery offices (beyond)*

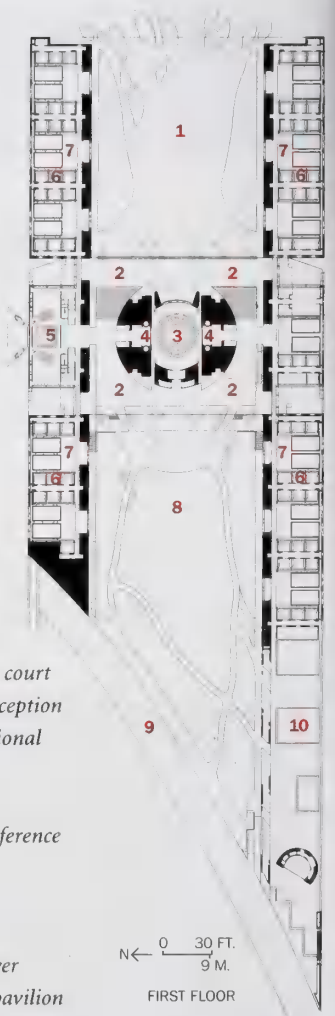


SECTION

Elegant progression: A solid core (section above and plan right), which contains the main meeting and conference spaces, anchors the building like a beefy hearth and chimney. An airy lobby (opposite) and generous reception area flows up a flight of stairs (below right) around the core back to the main block's grand glass western facade (below left), which, in turn, opens into a verdant garden.







1. *Entrance court*
2. *Lobby/reception*
3. *International meeting*
4. *Elevator*
5. *Press conference*
6. *Office*
7. *Atrium*
8. *Garden*
9. *Spree River*
10. *Garden pavilion*

FIRST FLOOR



manifested his anxiety about the design and his struggle to realize an expression appropriate to a new, idealistic and democratic Germany. (For a blow-by-blow, see Michael Z. Wise, *Capital Dilemma: Germany's Search for a New Architecture of Democracy*, Princeton Architectural Press, 1998.) But he did choose a difficult strategy.

Schultes won the competition for the chancellery because he eschewed the self-consciously monumental conventions of the Classical tradition yet also moved away from the self-effacing Modernism that made the Bonn capitol all but invisible. He has never been willing to let go of some traditional architectural devices that strike him as primordial, however. He finds these in the elongated, column-lined courtyards of Isfahan; the waterfall of courts and loggias in Hadrian's Villa, in Rome; the pavilionlike ground plan of Hagia Sophia, anchoring a gaggle of heavy-masonry cells. These ancient landmarks share an expressionism of surface and materials akin to the "tectonic" architectural culture, advocated particularly by Kenneth Frampton, that aspires to authentically root buildings in a time and place.

While eliding the minefield of unfortunate connotations less abstract historicist devices would have evoked, there's an implication of moralism in Schultes's hands, an implied "honesty" in the use of materials and forms that, at least in the building's external expression, seems not fully earned. We have been down the archaic-as-expression road with Le Corbusier, Louis Kahn, Carlo Scarpa, even James Stirling, and since you can find quotations from almost all of these seminal figures in the chancellery, it's hard not to conclude that Schultes has failed to find a transformative artistic mechanism the way his mentors did.

Schultes not only admires the rich procession of solid and void or lightness and density in archaic architecture, he seeks to capture that "power in building," a "lightness of stone," and a "materiality of light," as he writes in *Chancellery Berlin: Axel Schultes, Charlotte Frank* (Edition Axel Menges, 2002). It sounds contradictory, and remains unresolved. The chancellery's layers of surface and the enormous spans in cast concrete testify to Schultes's attempt to invent a mode of expression that plays on the viewer's expectations about load, weight, and span. This mode relies on a literacy about construction that may no longer exist in a "you can make it out of anything" world. Even in his own terms, the scale of the project partly defeated Schultes, he admits. For example, the sheer quantity of cast-in-place concrete involved made it impossible to get a consistently stonelike natural variegation. Instead of the sensuous gray of the unadorned surface, Schultes had to settle for the flatness of paint.

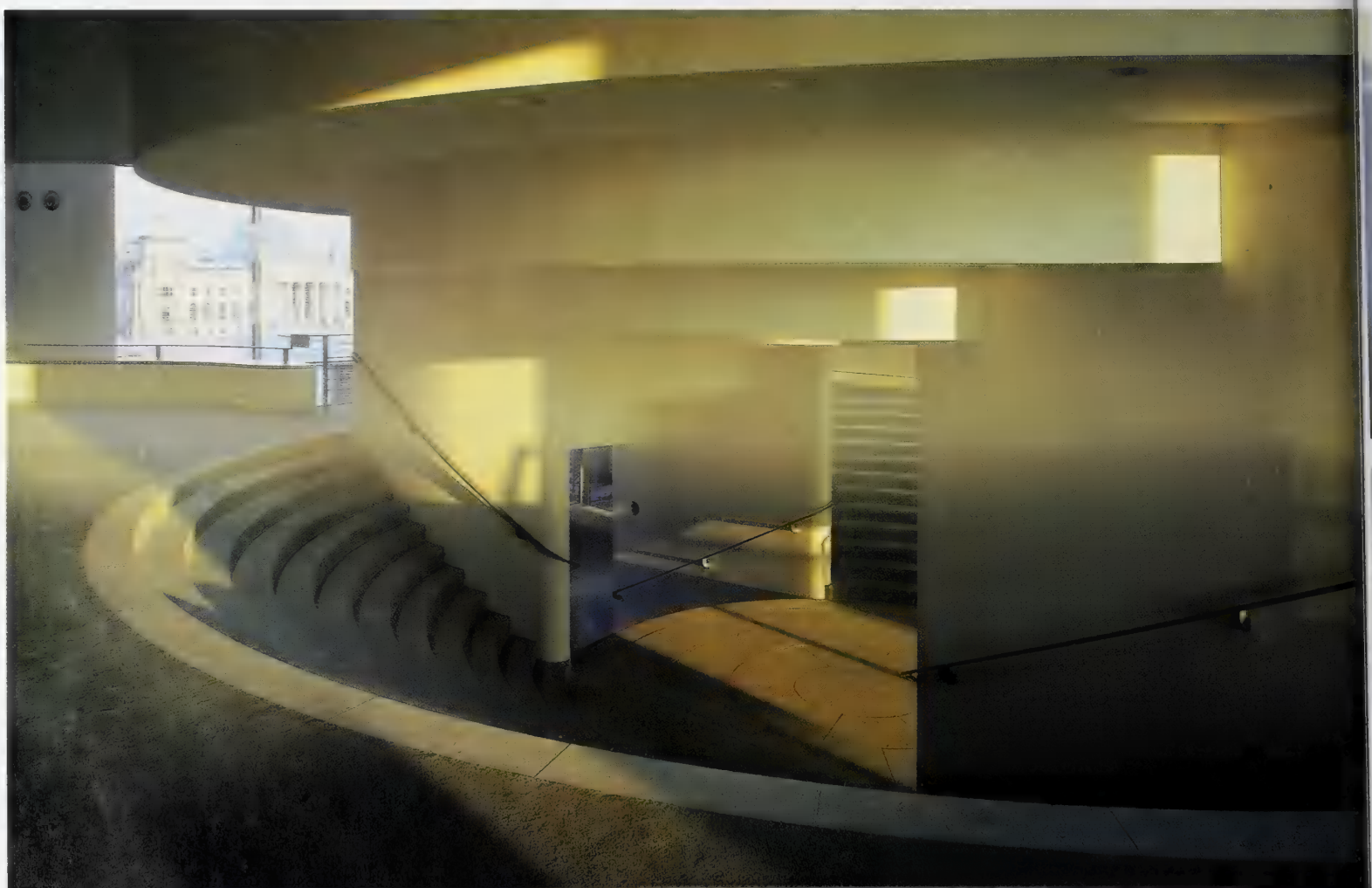
Once entered, however, the building offers a far more extraordinary and confident impression. The waving edges of the lobby bridges and the fluttering ceiling planes read like enormous unfurling flower petals, opening the whole building outward.

From within, the sculptural and layered aesthetic seems deeply

Inviting deliberation: The low wings of the chancellery array 370 offices in 13 blocks (opposite, top), each of which opens onto a naturally ventilated courtyard, enlivened by individually designed gardens and works of art (right and far right). Early schemes for the central block gave greatest importance to primary meeting rooms, with other functions arranged in slabs of "service" spaces. In the end, the architects made the building's connective tissue key to its internal expression. On the fifth through the eighth level of the central block, Schultes and Frank pushed the offices and meeting rooms to the north and south sides, allowing the solidity at the center of the lower levels to give way to atriums that stretch vertically across the four upper levels (opposite, middle). The offices are quietly elegant and handsomely appointed, but Schultes and Frank recognized that officials often find the key to a contentious issue outside formal meetings. In contrast to the dense fabric of ancillary services that wrap the offices, open, airy lobby bridges traverse the atriums (opposite, bottom), punctuated at the center with a stair that ascends in alternating convex and concave amphitheatric wedges (below). The intriguing stair seems to invite conversation, and the bridgelike lobbies save the interior from the labyrinthine quality so common in government buildings. The lobby bridges open broad views east and west across the atriums, through the high glass walls and their layers of exterior piers and overhangs.













tied to the building's purpose. The drama of the informal gathering spaces and their progression is pregnant with expectation. These spaces present themselves—perhaps too romantically—as settings for the great affairs of state. The agoralike lobbies almost palpably ask politicians to seize the moment. One imagines the chancellor posed in front of the vast curve of windows that frame his office, gazing over the Tiergarten, to the Reichstag, the Brandenburg Gate, and the skyline of the reunited city. Can one do anything but put the pettinesses of day-to-day politics in perspective, summoning the wisdom to recognize the great issues at stake? This is no doubt an idealistic, if not naive, view of how architecture can affect the way politicians work, but it is in this kind of expression that the building is truly representational—its grandeur is not empty but embodies peoples' aspirations.

On the other hand, as one gazes across the dispiriting spectrum of public building in America—the prisonlike public schools or the cookie-cutter Classicist municipal buildings—we find an aspiration to little more than value engineering. In Washington, D.C., a planned Capitol Visitor Center will be buried [RECORD, March 2002, page 135]—speaking to no values at all. Whether or not he fully succeeded in his aspiration, Schultes dared the German people to express greatness, and they, courageously, took him up on it. ■

Sources
Stone: *Naturstein Vetter*
Facades: *Ruper App; Gebruuder Schneider Fensterfabrik*
Concrete: *Itter*
Elevators: *Tepper*

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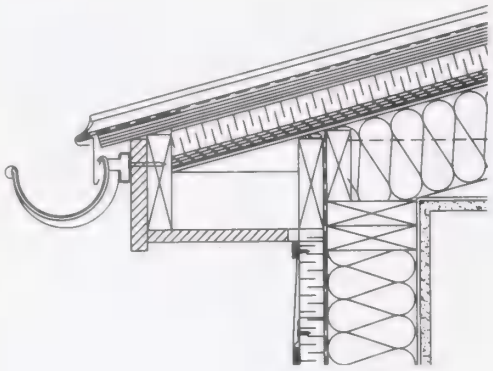
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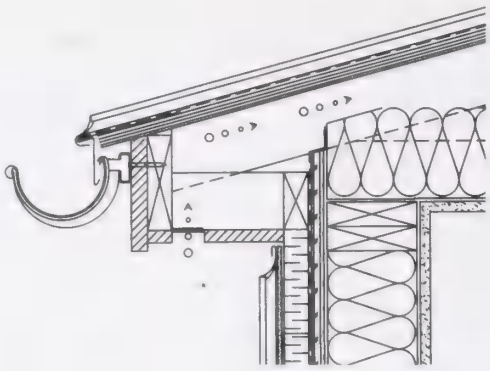




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Woodbridge Lodge, Rendlesham, GB using th RHEINZINK®-Click Batten System

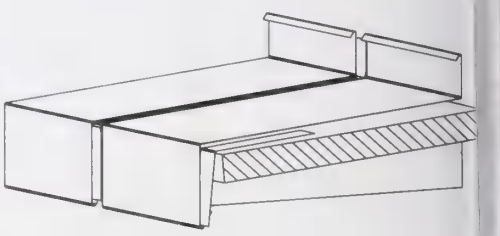
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Quality Standards
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Wall coping using RHEINZINK®-"ProRoofing



Flashings on roof dormers, verges, balconies and eaves

For more information, please see RHEINZINK® Design Guidelines as well as the textbook entitled "RHEINZINK® – Applications in Architecture".

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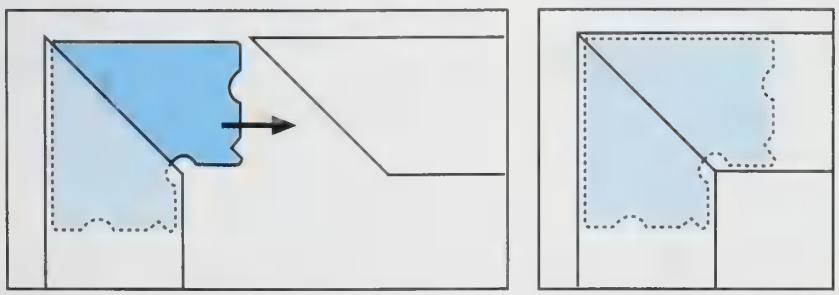


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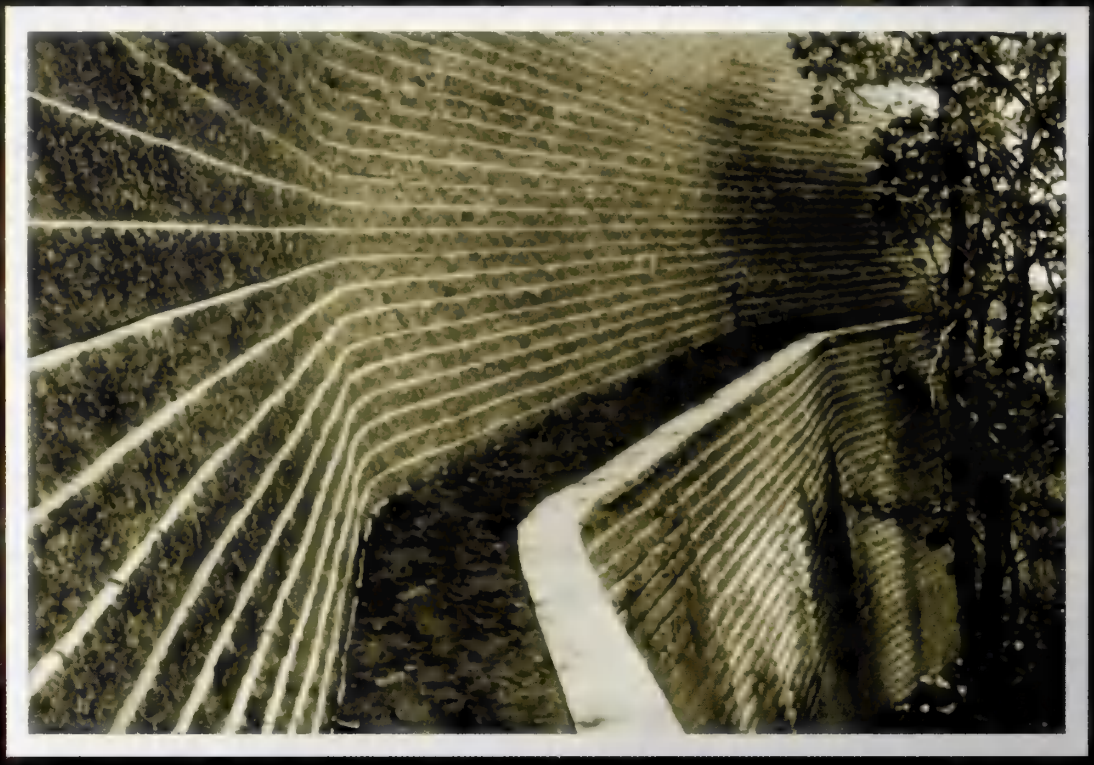
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STADIUMS

The Only Game in Town

MOVE OVER BRICKS AND MORTAR: THESE FOUR NEW STADIUMS PROVE THAT CONTEMPORARY ARCHITECTURE CAN REFLECT THE SPORTING ASPIRATIONS OF CITIES.

By Elizabeth Harrison Kubany

Sports are big business, and with big business comes big controversy. Throughout the 1990s, we heard endless noise about team owners threatening to relocate their franchises if their home cities refused to subsidize new stadiums. Team owners insisted that these new facilities were necessary for financial reasons—to accommodate larger crowds and provide new revenue sources in the form of corporate suites, club seats, retail venues, bars, and restaurants.

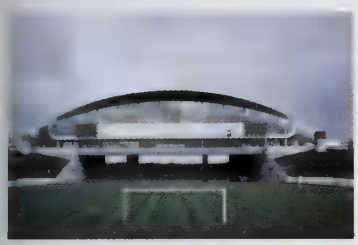
One could argue that billions of dollars in public monies could be put to better use than to underwrite wealthy teams and their wealthier owners. But municipalities were held hostage because major league stadiums—whether for baseball, football, or hockey—draw unprecedented crowds and, therefore, have the power to revitalize entire areas of a city.

There was an architectural side to this controversy, as well. Baltimore's Camden Yards set a precedent when it opened in 1992 because of the way it sparked the renewal of this beleaguered urban area. The 46,000-seat baseball park, with its traditional bricks-and-mortar design, proved to be an appropriate response to the needs of that city, and Camden Yards ability to bring life back to the city center spawned numerous historicist stadiums around the United States.

As the four projects on these pages show, however, stadiums do not have to be theme parks in order to be successful. All of these projects employ unabashedly modern architecture to achieve the same net result. They are popular venues that draw huge crowds but use forward-looking forms to do so. In some cases, this approach provides far greater flexibility to solve site constraints than the historicist approach would.

In the northernmost part of Japan, Hiroshi Hara has achieved a remarkable feat of engineering in his all-weather Sapporo dome. The forbidding local climate made a retractable roof impossible, so Hara designed a vast, column-free dome, resembling a flying saucer, with a grass soccer field that glides between inside and out via pneumatic force to allow the grass to get sunlight. Arquitectonica's American Airlines Arena uses glazing to open it to the nearby downtown area, and outdoor terraces to link it to Biscayne Bay. NBBJ has broken up the seating bowl of Paul Brown Stadium so that the city and stadium become intertwined. And, finally, the control tower of Indianapolis Motor Speedway is a modern take on a Chinese pagoda, which lends visual interest to this complex whether filled to capacity with a quarter of a million people or totally empty.

These projects help prove that traditional architecture needn't be the answer to the problem of how to design sports stadiums that can provide iconic imagery to help revitalize cities. No matter who pays for them. ■



1.

Sapporo, Japan

Hiroshi Hara rejects the retractable roof and engineers an indoor/outdoor facility with a moving playing field instead.



2.

Miami, Florida

On one of Miami's most prominent waterfront sites near downtown, Arquitectonica's new stadium is bringing life back to the city center.



3.

Cincinnati, Ohio

NBBJ employs a very urban approach—in terms of both design and planning—to create a link between downtown and the Ohio River.



4.

Indianapolis, Indiana

With Chinese forms and industrial materials, BDMD provides the world's largest sporting venue with an iconic image.

www For additional stadiums, and more information on the people and products involved in the following projects, go to Building Type Study at **architecturalrecord.com**.

Sapporo Dome
Sapporo, Japan

IT MAY LOOK LIKE A UFO, BUT WITH ITS MOVING GRASS PLAYING FIELD, HIROSHI HARA'S STADIUM IS A FEAT OF ENGINEERING.

By Naomi R. Pollock, AIA

Architect: *Hiroshi Hara—Hiroshi Hara, partner in charge*
Client: *City of Sapporo, Japan*
Consultants: *Mutsuro Sasaki, Yoshio Tanno, Osamu Hosozawa (structural); Hiroaki Takai, Takashi Ichihashi (mechanical); Tsukasa Tomabechi (snow engineering); Tatsuichi Tsujii (landscape ecology); Kaoru Mende, Hiroyasu Shoji (light design)*
General contractors: *Taisei Corporation; Takenaka Corporation; Schal Bovis*

Size: *982,810 square meters*
Completion date: *May 2001*
Sources:
Glass curtain wall: *Asahi Glass Hokkaido Building Materials Co.*
Roofing: *Sankyo Aluminum Industry Co., E. Katayama & Co.*
Skylights: *YKK Architectural Products*
Indoor arena seating: *Kotobuki Corporation*
Indoor arena lighting: *Matsushita Electric Works*
Elevator: *Toshiba Elevator and Building Systems*
Escalator: *Hitachi*

WWW For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Background

In planning for the World Cup 2002, the Federation Internationale de Football Association (FIFA) broke with tradition and, for the first time ever, invited two countries, Japan and Korea, to host the event jointly. To meet the tournament's needs within Japan, FIFA selected 10 host cities throughout the archipelago, among them Sapporo, the largest city on the island of Hokkaido. Located in the northernmost part of Japan, Sapporo captured the world's attention as the venue for the 1972 Winter Olympics. Although the ideal setting for skiing and skating, the city had no stadium fit for a major soccer tournament.

So, in 1996, Sapporo conducted an international competition for the design of an all-weather dome on the outskirts of the city. In addition to the World Cup's requirement for a natural-grass soccer field, the new building had to include a professional-grade baseball diamond and be able to host events such as rock concerts and large exhibitions. Beating out teams from a number of different countries, Tokyo architect Hiroshi Hara took first prize.

Context

The site, which was previously open farmland belonging to an agricultural research institute, posed few constraints. For Hara, the greatest design challenge was the local climate. During the winter, Sapporo's daytime temperatures are well below freezing, and winds from Siberia buffet the city all season long. But precipitation is the real problem: Each year the city gets a whopping 20 feet of snow. Predicting how the snow would behave on a long-span roof was extremely difficult. "Snow is very unpredictable," explains Hara. "You never know what the load will be at any particular time."



Because of the harsh weather, the grass playing field had to be covered. At the same time, the field required four hours of direct sunlight every day for the grass to stay healthy. To resolve this conflict, Hara had to find a way to move either the roof or the field. Because of the snow load and other climactic conditions, the use of a retractable roof was eliminated from the start. The only option was to move the field.

Solution

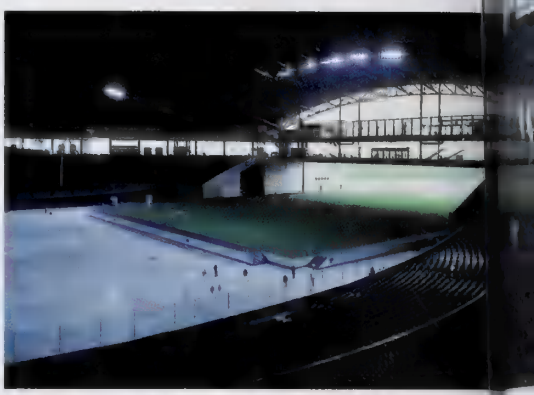
"In principle, my scheme is really very simple," says Hara. Shaped in plan like a figure eight, Hara's proposal consisted of two arenas, one

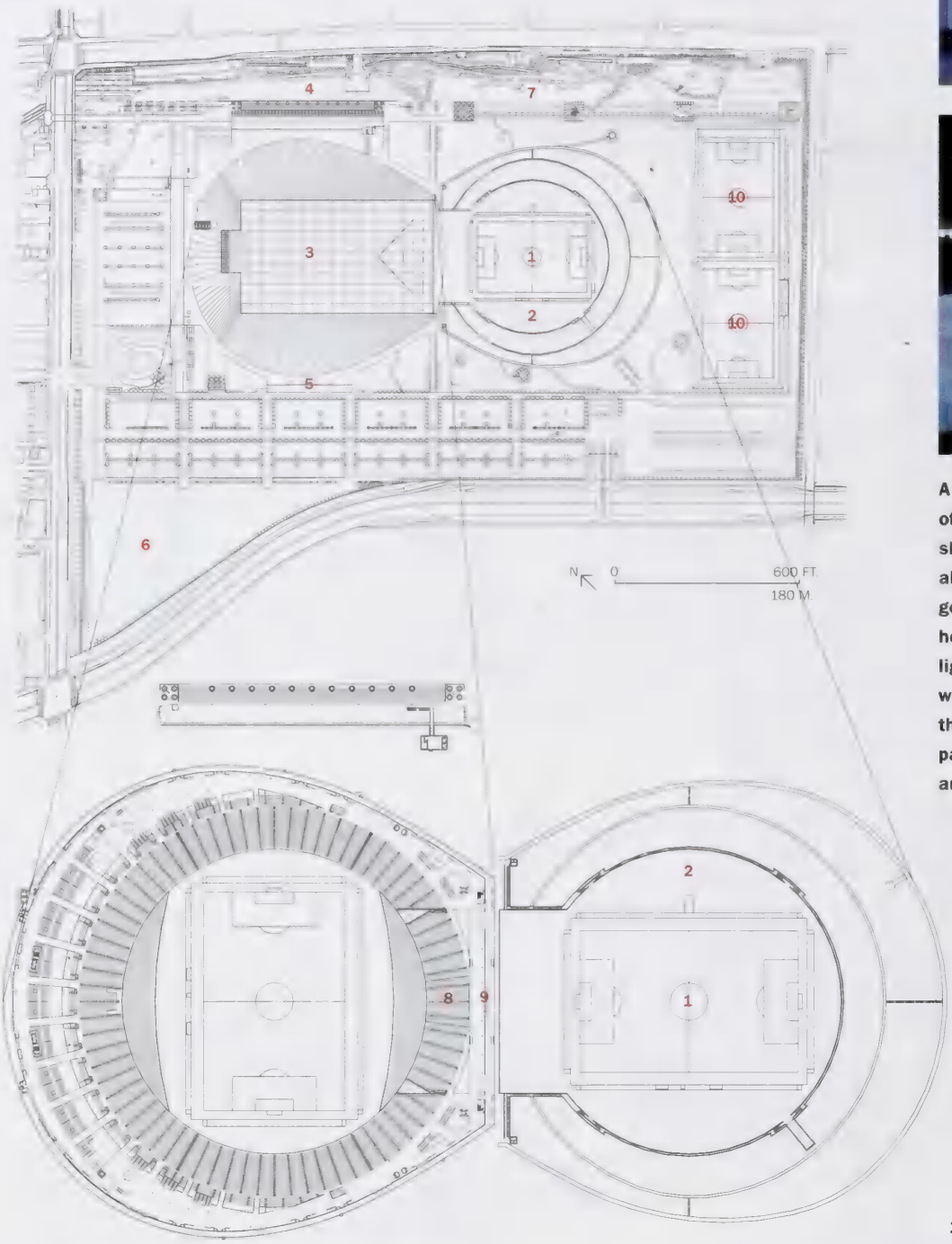
Dealing with very heavy, and unpredictable, snow loads (opposite and this page, bottom) was the architect's greatest challenge. A retractable roof was ruled out, replaced instead by a field that slides in and out of the dome (this page, top).







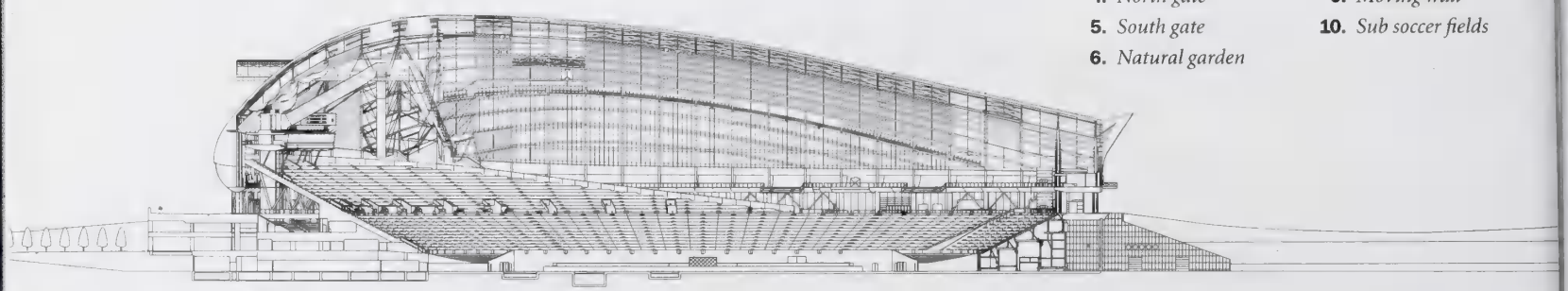




A remarkable feat of engineering, the sliding playing field allows the grass to get its requisite four hours of daily sunlight. When the weather is good, the field becomes part of the outdoor arena. The 83,000-ton field glides via pneumatic force (above top) into the column-free, 43,000-seat indoor stadium. Designed for soccer matches (above), the dome also accommodates baseball games, concerts, and large exhibitions.

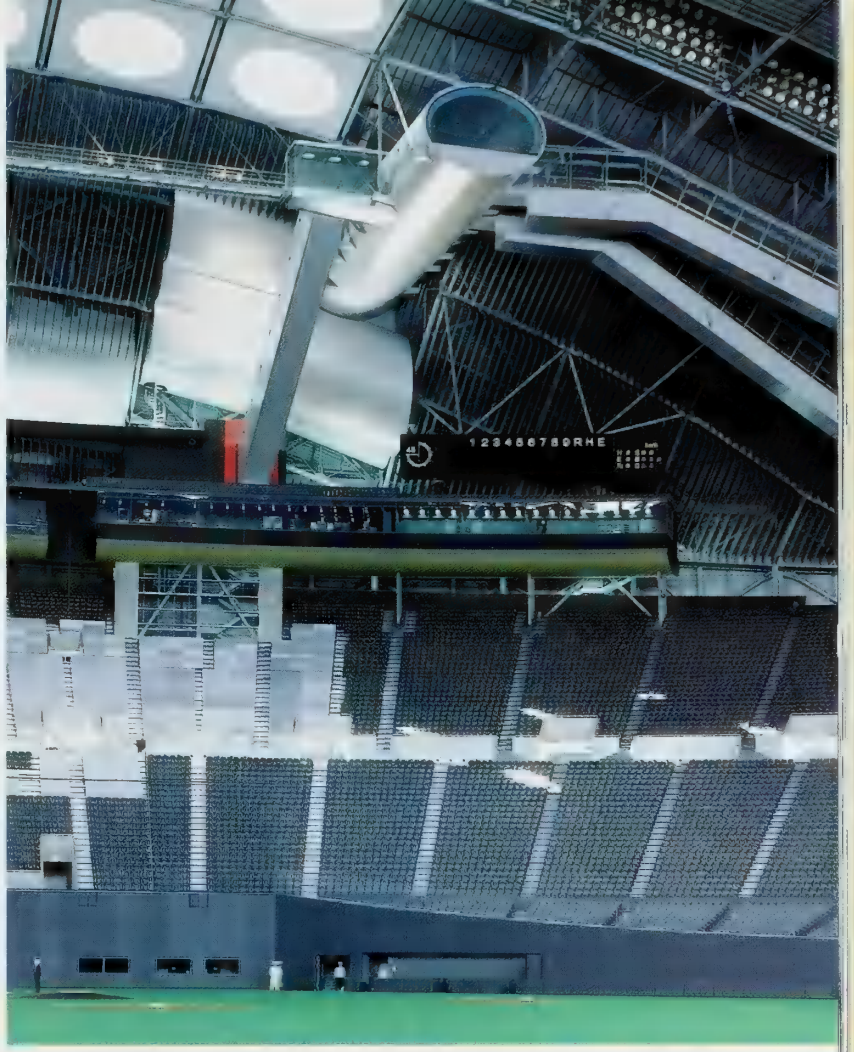
SITE PLAN AND FLOOR PLAN

1. *Hovering stage*
2. *Open-air arena*
3. *Indoor arena*
4. *North gate*
5. *South gate*
6. *Natural garden*
7. *Botanical garden*
8. *Movable/retractable stand*
9. *Moving wall*
10. *Sub soccer fields*



SECTION





indoors and one outdoors, with a soccer field that glides back and forth between them. At grade, the stainless-steel clad, 43,000-seat indoor dome looms over its wide-open site like a gleaming flying saucer.

The dome's aerodynamic form grew out of the need for a roof that could not only withstand and deflect the snow but also shelter a vast, column-free space. Spanning 804 by 745 feet, the roof is supported by a shell structure composed of 13-foot-deep space trusses that transfer their loads to a ring of columns at the building perimeter. The dome's flat end opens onto the outdoor stadium. Here an internal "bridge" and tension cables complete the structural loop by channeling loads to either side. While sheets of glass seal the bridge's double-deck slot of space, a 50-foot-tall moving wall underneath opens up like traditional Japanese sliding doors to let the soccer field pass through at ground level.

Following the Japanese tradition of temporary furnishings, such as *sudare* bamboo shades used to change the traditional house from summer mode to winter, Hara devised a kit of movable parts, albeit on a much larger scale, that can transform the building from baseball stadium to soccer arena to event hall and back again.

While rolling out synthetic turf and adding a fake pitcher's mound are all it takes to turn the arena into a baseball field, the conversion to soccer mode requires moving an 8,300-ton field. Composed of structural steel, concrete, sand, and grass, the "hovering stage" literally glides from outdoors to indoors like a magic carpet. First, air is blown in and trapped with perimeter seals under the field, which reduces the field's weight by one-tenth. Then the air's pneumatic force of 1.09 atmospheres propels the field forward at a rate of 4 meters per minute while wheels and floor-mounted sensors guide its course.

Once the field enters the building, it rotates 90 degrees on a pivot to face the main grandstand. The five-hour conversion is complete after four groups of movable seats are locked into position.

Commentary

Sometimes the truth really does seem stranger than fiction. But on close inspection, Hara's dome is not as wild as one might think. Expanding on the tried-and-true method of movable parts, Hara came up with an elegant and straightforward solution. While the stadium cost much more than a conventional stadium, "the city is getting two buildings in one," says Hara. And maybe, if they are lucky, Sapporo will even get a professional sports team to go with it. ■



American Airlines Arena
Miami, Florida

2

ON A PROMINENT WATERFRONT SITE, ARQUITECTONICA USES MODERN FORMS (OUTSIDE) AND BRIGHT COLORS (INSIDE) TO MAKE A SOPHISTICATED AND WELCOMING VENUE.

By Beth Dunlop

Architect: *Arquitectonica—Bernardo Fort-Brescia, FAIA, Laurinda Spear, FAIA, partners in charge; Michael Woollen, AIA, project manager; Robert Given, Mark Bichel, Marta Sensidoni, Jorge Cuba, Evan Siegel, Drew Napolitano, Carol Dufresne Trent, Peter Brand, Isis Hunt, Reinaldo Borges, Christian Petschen, project team*
Associate architect: *Heinlein & Schrock—George Heinlein, AIA, principal in charge; Debra Ford, AIA, project architect*
Client: *Miami-Dade County and Miami Heat Basketball Properties*
Consultants: *Thornton-Tomasetti (structural); Donnell, Duquesne, Albaisa (structural); Flack + Kurtz (mechanical, electrical); Fraga Engineers (electrical); PAWA (civil); Curtis + Rogers (landscape); L'Observatoire (lighting); Gottschalk + Ash (graphic design); WJHW (acoustical); Coastal Systems International (environmental)*
General contractor: *Morse Diesel/Odebrecht*

Size: *782,400 square feet*
Cost: *$220 million*
Completion date: *December 1999*

Sources
Curtain wall, doors, aluminum windows: *RC Aluminum*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com.**

Program

Controversy erupted immediately when the NBA's Miami Heat chose a site for its new arena on Biscayne Bay at the northern end of downtown, across from the Port of Miami. Civic activists and environmental groups opposed an arena there, envisioning a park on this desirable public land instead. Ultimately, the Heat won a 58 percent favorable margin in a countywide referendum and was allowed to go ahead.

In turn, Arquitectonica was asked to design the 20,000-seat American Airlines Arena. Their mandate was to construct a building that would do justice to its gateway position in downtown Miami. The arena needed to offer indelible architectural imagery and to connect game goers to both the city and the sea.

Professional sports are big business, and for the arenas to be considered a success, they require a complex arrangement of seats—from the regular seats to "club" seats to private boxes. South Florida is a region where private rather than corporate wealth dominates, so fewer corporate boxes were necessary. Rather, four ground-floor "starboxes" and 20 center-court suites were required. The Heat also wanted 300 special seats for diehard sports fans willing to pay a premium.

Yet, Arquitectonica was also asked to ensure that even the cheaper seats were good ones; the goal was to create an arena of tight, clear sightlines and close connections to the play. Other requisites were a practice court, a training gym, the locker room, and a physical therapy center for the team. The Heat also wanted to consolidate its entire management into one area.

Solution

Arquitectonica started with an ellipse as the basis of its design, a form that emerges as a concrete-and-glass grid; however, the building is transformed into an abstract

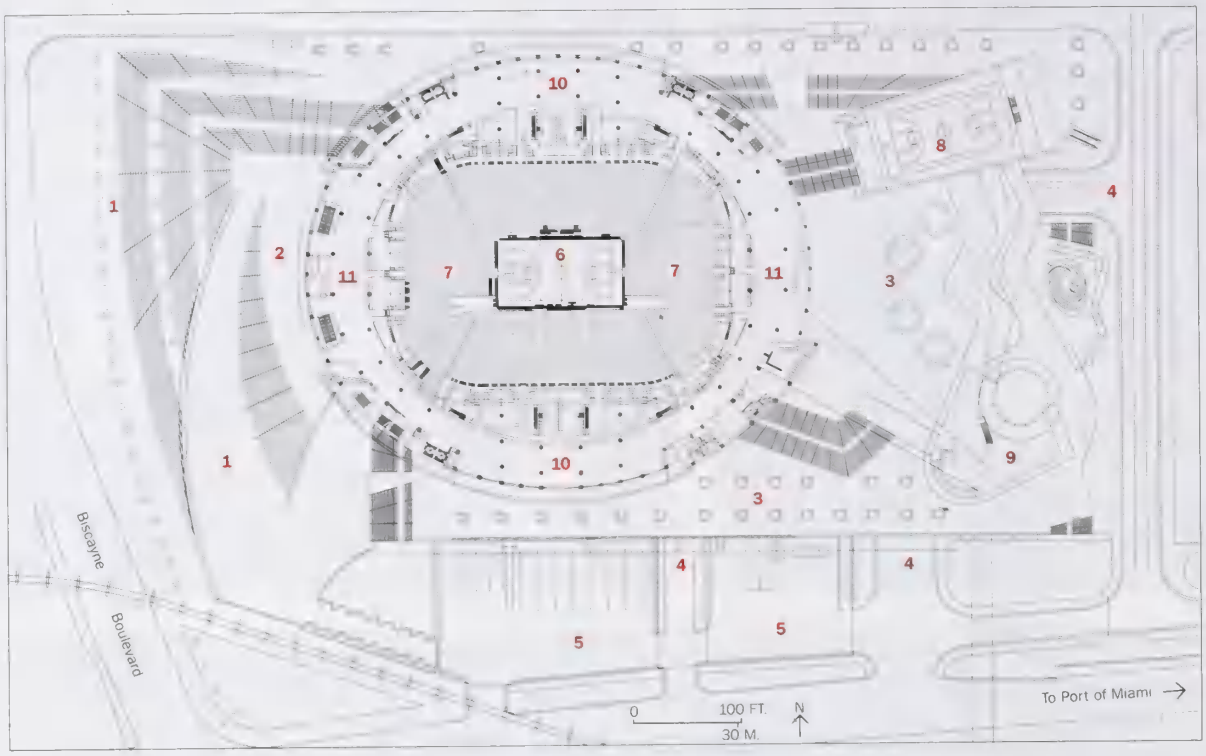






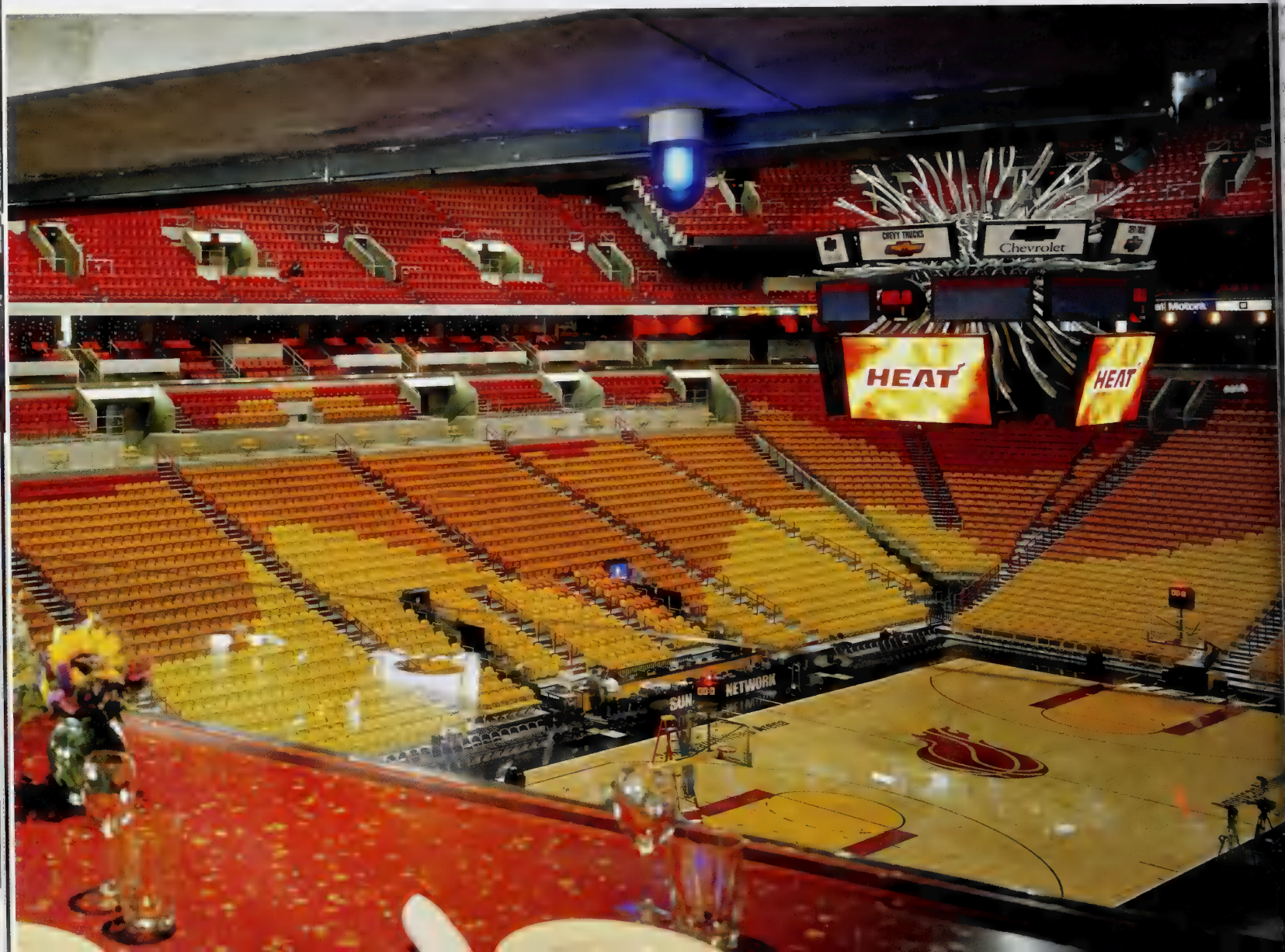


The arena's magnificent site, on the edge of Biscayne Bay (above right), required that the design connect users to both the city and the sea. The grand entrance plaza (below) faces the city. At night (above left), lighting and signage make the building come alive.



1. *Stairs/ramps*
2. *Main entrance*
3. *Elevated terrace*
4. *Underground parking garage access*
5. *Loading docks/service*
6. *Event floor*
7. *Seating*
8. *Practice court*
9. *Restaurant*
10. *Main concourse*
11. *Atria*

Warm colors arranged in a flame pattern enliven the main event area (below), as does artist Christopher Janney's imaginative anemonelike *Turn Up the Heat* light-sculpture scoreboard.



sculptural entity by the two vast white fins that envelop it. From a distance, the fins look like sails on a giant ship, giving the arena a powerful presence on the bayfront.

Because most fans arrive from the downtown area, the approach into the building on this elevation is quite grand—up a broad, palm-studded, piazzalike stairway. Lit from within, the arena glows like a ship lantern. "We wanted the building to feel very festive at night," says Arquitectonica principal Bernardo Fort-Brescia.

Inside, the arena is divided into four color-coded quadrants—red, orange, yellow, and blue—as an organizing thesis. These zones are expressed in the finishes; for example, in the colors of the geometric-patterned terrazzo on the concourse floors. Each quadrant also has its own geometric motif, providing what Fort-Brescia calls "a subliminal way-finder through the building."

The focal point, of course, is the perfect rectangle of the regulation basketball court. The seating rises above it with some visual interest; a large abstract flame pattern in the team colors (red, orange, and yellow) overlays the stands. Although built for basketball primarily (the Heat and the WNBA Miami Sol both call it home), the arena also is used as a hockey rink and concert venue.

Commentary

The American Airlines Arena is both sophisticated and fan-friendly, a carefully detailed sports facility. The architects have paid great attention to both the formal and spatial aspects of the building, as well as to the finishes. It is proof that modern forms can be just as effective in creating iconic sports architecture as historicist ones.

As for the players, this arena is widely thought to offer some of the best accommodations in the NBA, from the domed and carpeted locker room with its custom wood cabinetry to the practice court that looks out onto Biscayne Bay and the Miami seaport beyond. "This is off-the-hook," said guard Mike James, admiringly. "It's nice. It's really nice." ■





The concourses (above and left) were purposely left rough, with exposed structural and mechanical systems, to make the building feel somewhat gritty, like a true sports facility.

Paul Brown Stadium
Cincinnati, Ohio

3 **WITH A CONTEMPORARY VOCABULARY AND A DECIDEDLY URBAN APPROACH, NBBJ DESIGNS A VERY GOOD NEIGHBOR.**

By David Mohney

Architect: *NBBJ—Dan Mies, design principal; Ron Turner, technical design principal; Friedl Bohm, partner in charge; Paul Becker, project manager; Paul David, senior project designer; Guy Painchaud, senior interior designer; Ed Mickelson, landscape designer; Marc Davidson, project architect; John Truong, technical architect; Taylor Hamblett, construction administrator*
Associate architect: *Glaser Associates—Art Hupp, principal*
Owner: *Hamilton County, Ohio*
Consultants: *Arup (structural); Flack + Kurtz (mechanical, electrical, HVAC, lighting); JMA Consultants (civil); Catt Lyon Design (graphics); G.J. Thelen & Associates (geotechnical)*
General contractor: *Turner/Barton Malow/D.A.G. (joint venture)*

Size: *1.8 million square feet*
Cost: *$310 million*
Completion date: *September 2000*

Sources
Roof system: *Bird Air*
Curtain wall, windows, storefront: *Wal-Tek*
Architectural glazing: *Viracon Glazing*
Overhead coiling doors: *Cincinnati Overhead Door*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Background

Like many other stadiums and ballparks built during the past two decades, Cincinnati's Paul Brown Stadium was designed as a part of an overall urban design program, intended to tie a major entertainment venue into the improvement of the district around it. But unlike many of these efforts, which use historicist designs as an anchor, Paul Brown Stadium is thoroughly contemporary in its imagery.

The stadium's designers, NBBJ Sports and Entertainment/Los Angeles, take great advantage of the riverfront site. In the mid-1990s, Cincinnati embarked on a major urban redevelopment project. One primary goal was to facilitate a better connection between the commercial core of the city's downtown, loosely centered on Fountain Square, and the Ohio River three blocks south. Urban design guidelines prepared by UDA Associates in Pittsburgh emphasized linking a series of discrete riverfront spaces into a continuous waterfront park, and siting new public facilities, like football and baseball stadiums, as both attractions and public gathering areas.

Solution

But it is in the architectural composition of the stadium itself that the designer's sensitivity to the urban context shines. Unlike several generations of closed-in stadiums, this facility for Cincinnati's football franchise, the Bengals, opens itself to the city by breaking up the seating bowl. Seating sections are organized into separate grandstands on the sides and ends of the playing field. From the point of view of the fan, this has the effect of minimizing corner seats, placing more seats on the primary sides of the field and thus giving a much higher percentage of the audience better views of the game. Better views make better customers and provide higher ticket revenues for the team.

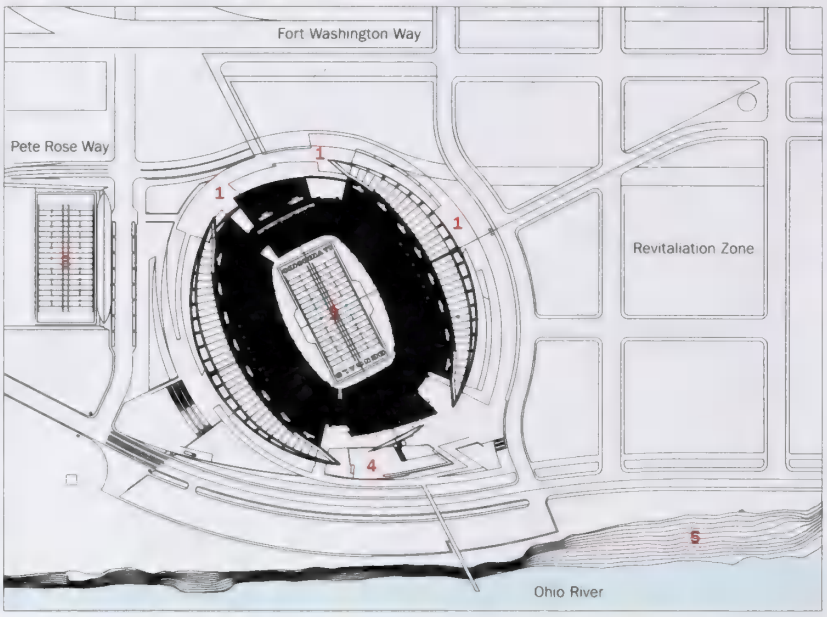
Yet there are intangible benefits, as well. Paul Brown Stadium has 67,000 seats, but it invites the entire city in at every opportunity. The gaps between grandstands provide wonderful views both in and out of the



Linking downtown Cincinnati with the Ohio River (opposite), the stadium serves an important urban design function. By breaking up the seating bowl, the designers invite the city into the stadium (this page, bottom) and give the building the feeling of a group of discrete elements (below), rather than a monolith.







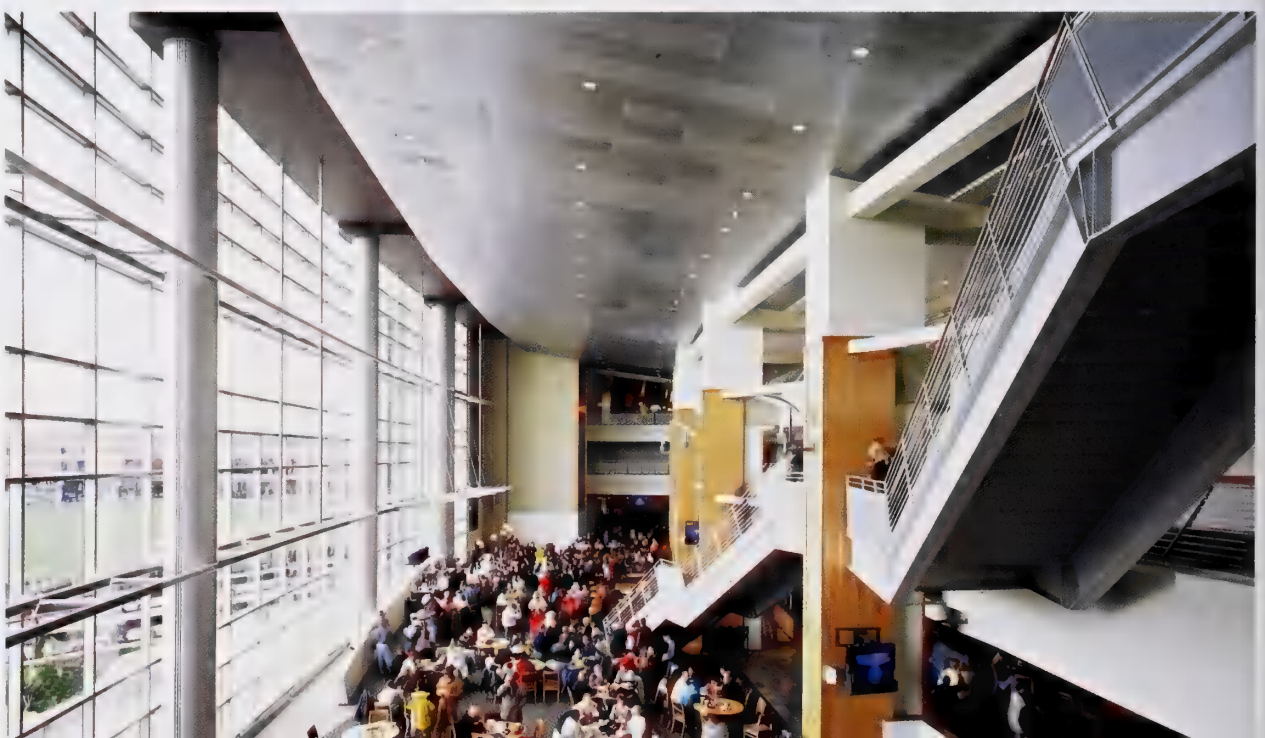
1. *Entrances*
2. *Field*
3. *Practice fields*
4. *Administration building*
5. *Future river park development*



stadium. Everyone in the immediate vicinity of Paul Brown Stadium on game day will be aware that a major sporting event is underway: Large sections of seated fans will be visible and audible to those merely passing by, imparting an infectious sense of participation in a spectacle. Views out of the stadium are remarkable, as well; they afford the fans a panorama not only of downtown but also of the riverfront and the historic waterfront cities of northern Kentucky across the Ohio River, along with the bridges connecting both sides of the river.

The fracturing of the seating bowl also serves the urban context in another way. The separate grandstand elements have a verticality that they would not have if they were unified. From a distance, the varied elements of the stadium's design echo the look and the scale of a group of buildings on adjacent city blocks. "We had both a building type and a sport not known for bold architecture," says Dan Mies, lead designer for NBBJ. "We asked ourselves: In an urban site, can we break the components down to integrate the stadium into the urban environment?"

The success of NBBJ's urban intentions is further enhanced by the use of a variety of materials. The exterior combines masonry, translucent glazed skin, and perforated stainless-steel panels. Angular



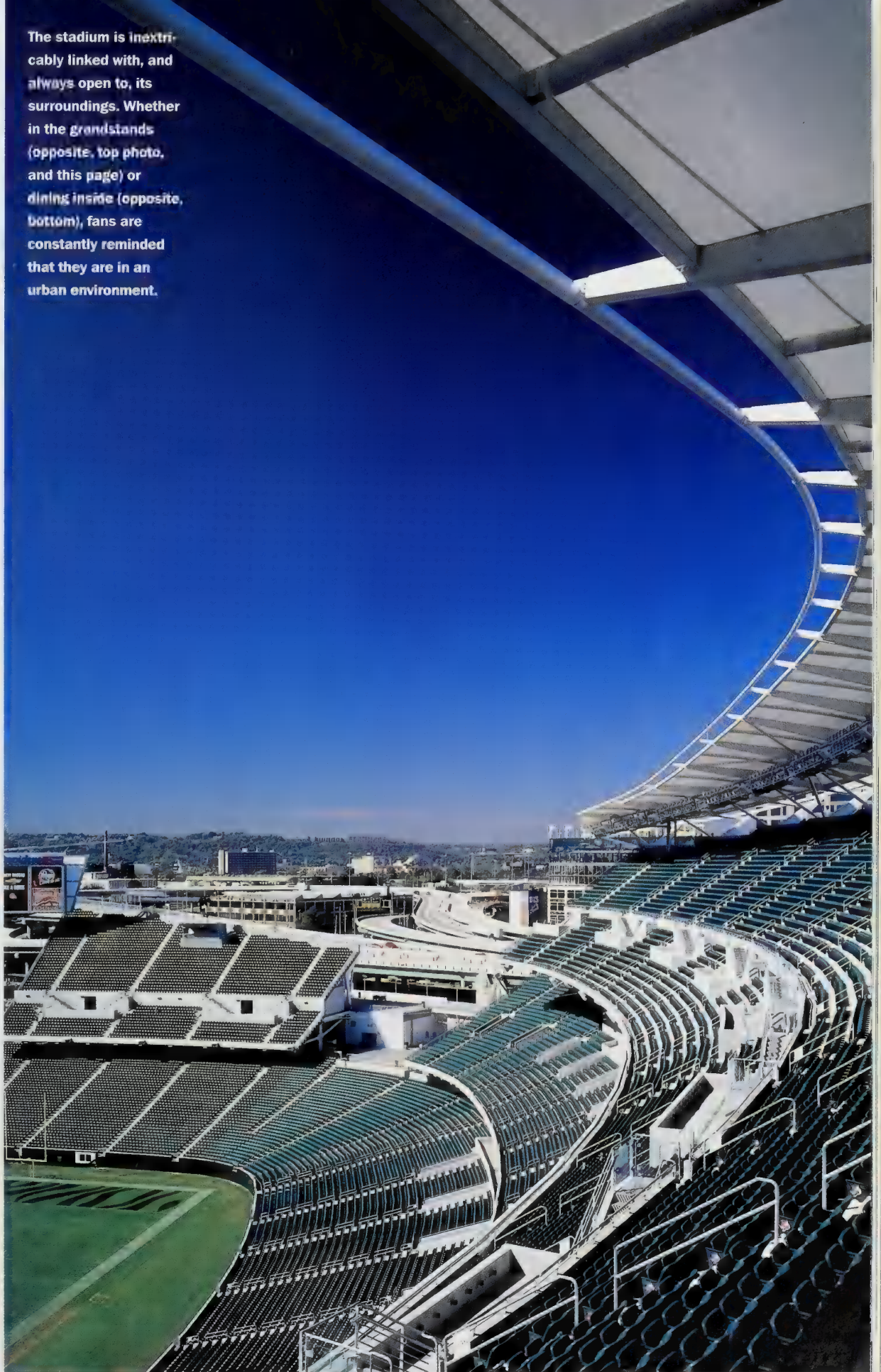
Exposed structural elements, such as the tensioned truss system for the grandstands, give the building an industrial quality that relates to the historic Roebling Bridge, as well other rail and vehicular bridges nearby.

edges emphasize the change of materials, giving the complex a sense of motion and urban vitality. And the difference between day and night, when the translucent and perforated exterior skin systems are lit from within, is another attribute. Lighting stanchions above the sidelines and major electronic signs in the end zones are also separate elements, further breaking down the scale from stadium to urban assemblage. The exposed structural elements, most notable in a tensioned truss system for the grandstands and the cantilevered lights and signage, resonate with the historic Roebling Bridge (a precursor of the Brooklyn Bridge), as well as other bridges for both rail and vehicular traffic nearby. Thus, in terms of its apparent massing, materials, and methods of construction, the stadium is a remarkably good complement to its neighbors.

The prime tenant, the Bengals football team, has traditionally utilized a collegiate approach to practice and preparation. Practice fields are adjacent to the stadium, and the team areas incorporate a large auditorium for film and strategy reviews. Team administrative offices overlook the river and, in following the overall urban design concept, appear to be a separate building from that side of the complex. Great care was taken by the designers to provide creature comforts. In addition to three levels of skyboxes, there are four large lounge areas, myriad concession outlets, and enough restroom facilities to eliminate waiting lines for both sexes, a chronic problem for major sporting facilities.

Commentary

In solving so many of the urban issues associated with contemporary stadiums, the designers of Paul Brown Stadium have addressed key issues of our time with architecture that is reflective of this time, not with a retro approach. It's a welcome course for a city usually known for its conservative cultural aspirations, resulting in one of Cincinnati's most important civic amenities. ■



The stadium is inextricably linked with, and always open to, its surroundings. Whether in the grandstands (opposite, top photo, and this page) or dining inside (opposite, bottom), fans are constantly reminded that they are in an urban environment.

Indianapolis Speedway
Indianapolis, Indiana

4

BROWNING DAY MULLINS DIERDORF DESIGNS A CHINESE PAGODA IN INDUSTRIAL MATERIALS TO GIVE AN ICONIC IMAGE TO AMERICA'S MOST POPULAR SPORT.

By Elizabeth Harrison Kubany

Architect: *Browning Day Mullins Dierdorf Architects—Jonathan R. Hess, AIA, principal in charge; David M. Long, project manager; Matthew S. Woodruff, AIA, project architect; Stephen A. Hoersten, project coordinator; Chad Hunsaker, Randy Hurst, Keith Clark, Matthew Garrett, Somsri Bond, Tony Allen, R. Shannon Cole, Charles Johnson, project team*
Client: *Indianapolis Motor Speedway Corporation*
Consultants: *Fink Roberts & Petrie (civil/structural); Circle Design Group (MEP); Browning Day Mullins Dierdorf Architects (landscape); Fisher Marantz Stone (lighting); Ralph Gerdes & Associates (code)*

Size: *100,000 square feet*
Completion date: *September 2000*

Sources
Structural glazing: *Pilkington Planar*
Insulated-panel glazing: *Kalwall*
Elastomeric roofing: *Firestone Rubbergard*
Aluminum doors: *EFCO*
Locksets: *Best*
Hinges: *Hagar*
Pulls: *Rockwood*
Cabinet hardware: *Blum; Stanley*

WWW For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Background

It may be a forgotten bit of American history that Indianapolis was once a hub of our country's auto industry. At the beginning of the 20th century, the city was home to over 60 car manufacturers. (Ultimately, Indianapolis was never a real threat to Detroit's auto business because the lack of a navigable river prohibited transportation of coal, iron, and other materials necessary to support auto production.)

Intended to be a showcase and testing facility for this fast-growing industry and financed by four local businessmen, the Indianapolis Motor Speedway was built on 328 acres five miles northwest of the city in the spring of 1909.

Poor attendance at the track's trio of inaugural events caused the owners to rethink their plans and focus instead on a single event for 1911. On May 30 of that year, a 500-mile race took place that enjoyed instant success as the inaugural Indianapolis 500.

Built for this initial race in 1911, the site's first "pagoda" (so named because the necessary stacking of graduated levels made the building resemble a Chinese pagoda), the precursor to the modern-day control tower, housed scoring and race-control functions. The pagoda burned down in 1925 and was replaced by a similar structure. In 1957, a steel and glass structure replaced the former wood building.



Problem

From 1911, no race other than the Indy was held at the Speedway until a NASCAR stock car event, the Brickyard 400, debuted in 1994. In 1998, the track announced that the Grand Prix would race there beginning in 2000. Three different races (Indy, NASCAR, and Formula One) with three different types of cars having varying sets of facilities requirements meant that the Speedway needed a major upgrade.

Browning Day Mullins Dierdorf (BDMD), an architecture firm based in Indianapolis, was commissioned to improve the existing facilities and to design the necessary new ones.

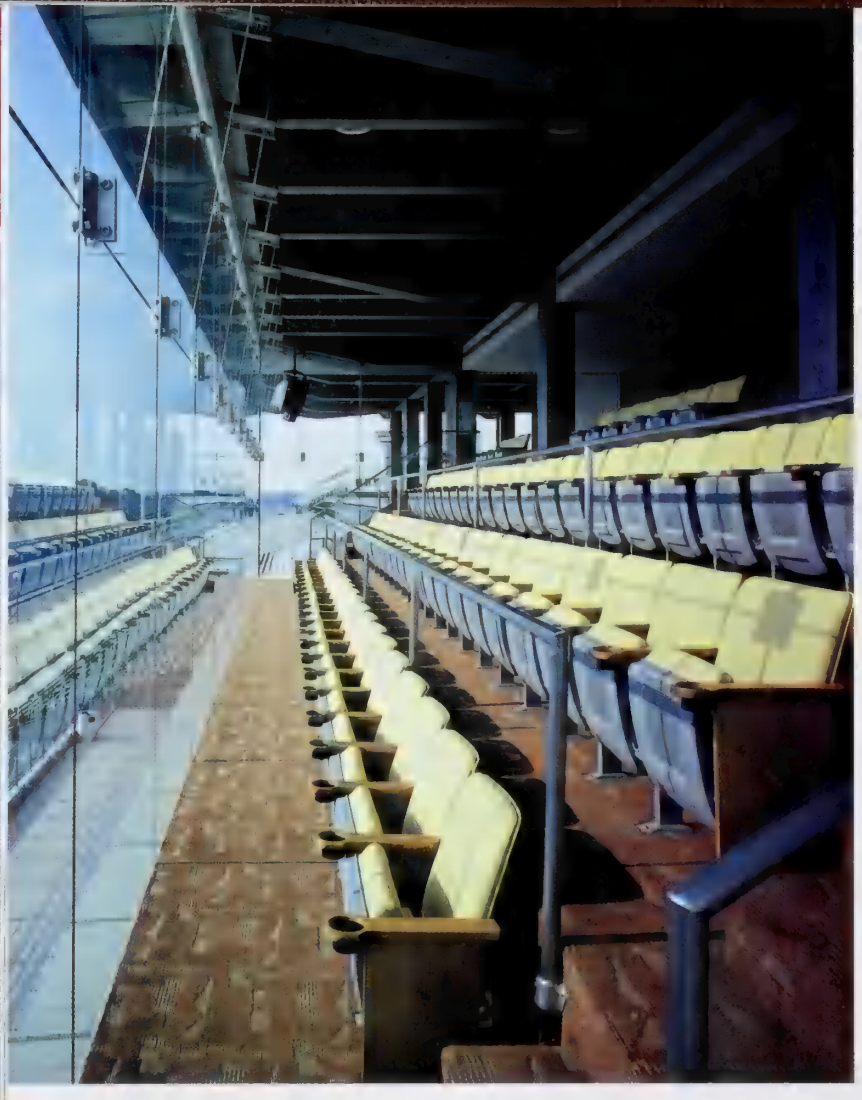
Solution

Five structures were built to provide the spaces required by the international sanctioning group. The first, a nine-story, 100,000-square-foot control tower, replaced the 1957 structure. According to Jonathan Hess, AIA, partner in charge of the project, BDMD's charge was twofold: to expand the control tower to include space for corporate hospitality, safety, and security, as well as broadcast, while providing an iconic image for the structure, which forms the centerpiece of the complex.

The new 153-foot-tall building borrows iconography from both the 1911 and 1957 buildings and, as a result, looks like a contemporary concrete, galvanized steel and glass version of the original Chinese pagoda. At alternate levels, the exposed galvanized structural steel



As the world's largest sporting venue, the Indianapolis Motor Speedway has 250,000 seats. The control tower, a Chinese "pagoda" rendered in modern materials, forms the centerpiece of the complex.





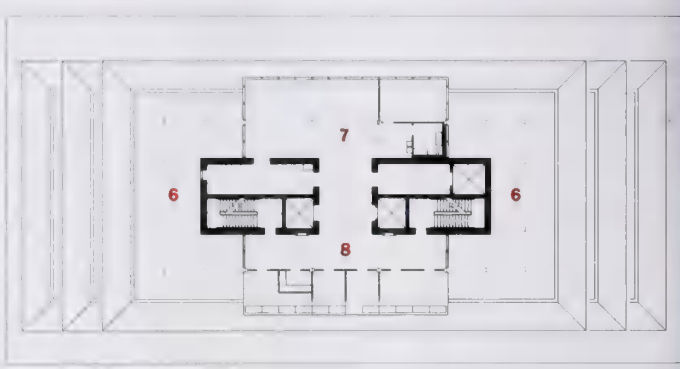
A tension-glass curtain-wall system and good sight lines provide unobstructed views to the cars, from the first to the fourth turns, no matter where a spectator is seated.

(the same material used in the miles of bleacher seats that surround the building) cantilevers to provide exterior viewing decks. The tension-glass curtain-wall system allows unobstructed views to the cars.

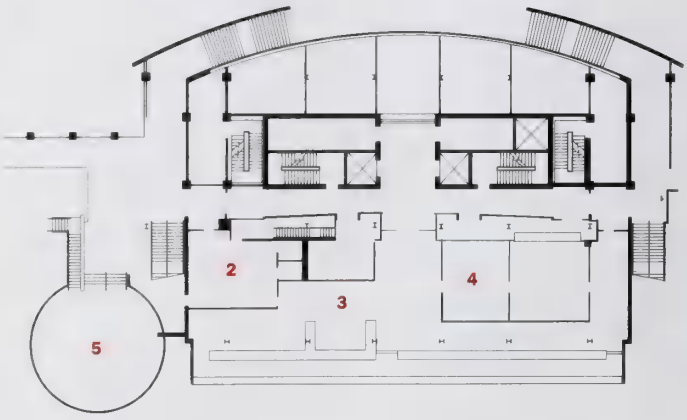
Other facilities built as part of this project include garage buildings, a media building for 700 journalists, team offices, and a catering facility.

Commentary

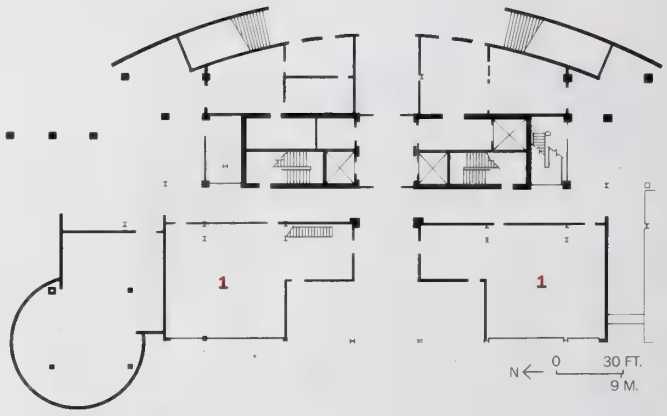
According to Hess, the project presented a "curious design challenge." With more than 250,000 permanent seats, the Indianapolis Motor Speedway is the world's largest sporting venue. Three times a year these seats are completely filled. But, because the building is host to only three events a year, the complex is starkly empty most of the time and the building is in "quiet repose," says Hess. So the architects had to design something visually interesting that could hold its own even when surrounded by miles of empty grandstands. Using vernacular Chinese forms and modern materials, they were able to produce a structure that affords color to the complex even when the complex is totally empty. ■



BROADCAST LEVEL



SCORING/TIMING LEVEL

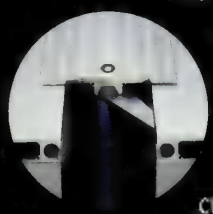


GROUND FLOOR

1. *Hospitality*
2. *Interview area*
3. *Race control*
4. *Media workroom*
5. *Winner's podium*
6. *Observation*
7. *Production area*
8. *Broadcast booths*

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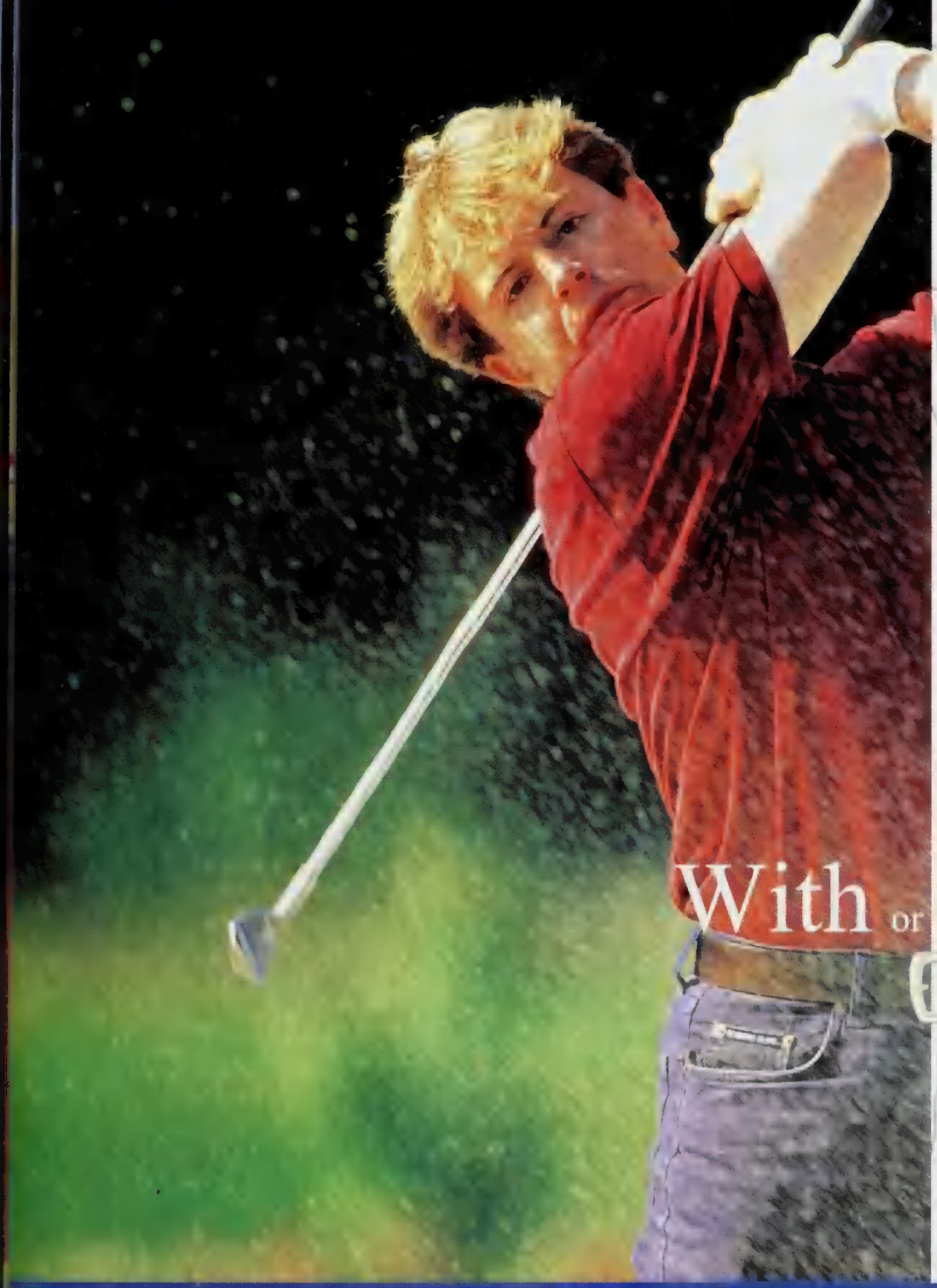
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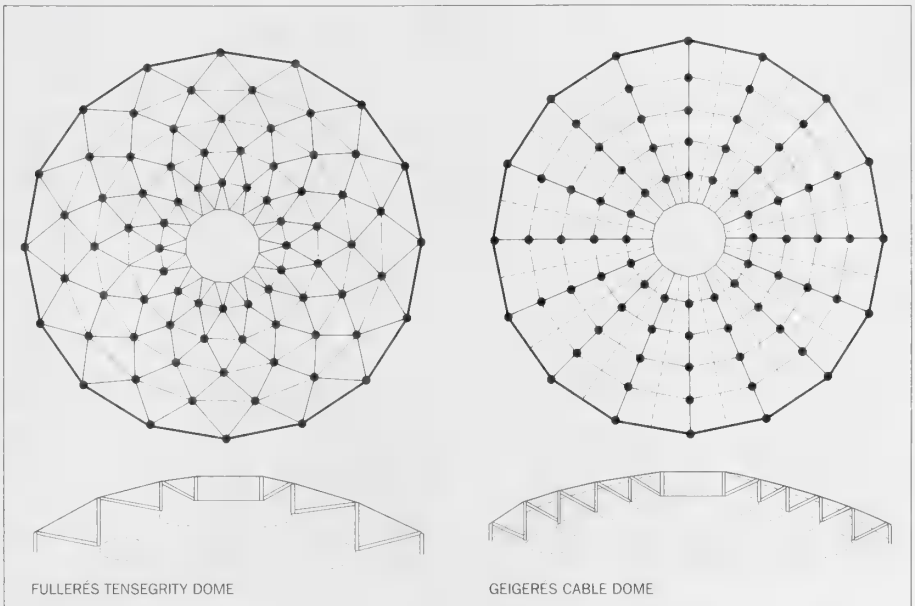
Buckminster Fuller's Dreams of Spanning Great Distances Are Being Realized in Big Projects

LONG-SPANS AMPLIFY THE COLLABORATIVE RELATIONSHIP BETWEEN ARCHITECTS AND ENGINEERS

By Sara Hart

"Islands of compression in a sea of tension!" was Buckminster Fuller's poetic definition of *tensegrity*. He also offered a more extensive one in his seminal book, *Synergetics* (1982), in which he coined the term as "a contraction of 'tensional integrity.' Tensegrity describes a structural-relationship principle in which structural shape is guaranteed by the finitely closed, comprehensively continuous, tensional behaviors of the system and not by the discontinuous and exclusively local compressional member behaviors. Tensegrity provides the ability to yield increasingly without ultimately breaking or coming asunder."

New York structural engineer Guy Nordenson, who worked for Fuller in 1974, parses the definition more succinctly: "Tensegrity structures are self-contained networks of cables and posts, sometimes of regular geometry, sometimes quite free-form. The basic principle is always the same: posts—that is, compression members—are suspended in a net of prestressed cables. The tension in the cables is what gives the system its stiffness and, as a result, the structures tend to be quite springy."



This diagram shows how David Geiger translated Buckminster Fuller's tensegrity dome into his revolutionary Cabledome. By lowering the profile, he created a more aerodynamic structure that would be self-supporting rather than pneumatically supported.

This principle is important to understand, because not only was it the theoretical basis for Fuller's revolutionary geodesic domes, its evolution has made spanning great distances possible today. Because technology didn't catch up with theory until the 1980s, Fuller's round, freestanding structures of the 1950s and '60s never grew very large in diameter. It wasn't until structural engineer David Geiger simplified the construction of Fuller's domes that the long-span domes that now cover sports stadiums, airport terminals, and convention centers were developed. Geiger, who died in 1989, engineered the first tensegrity structure at a large scale and patented it as the Cabledome. In essence, his system became the prototype for most long-span, tensile-membrane roofs.

"The Cabledome is technically not a tensegrity dome, because it relies on a continuous perimeter compression ring," explains Geiger principal David Campbell. "Bucky's tensegrity concept requires that all compression in the system be discontinuous. Bucky also patented a dome system that employed suspended, nested, annular frames, which he called the 'Aspension Dome.' In Bucky jargon, the Geiger Cabledome is really a tensegrity-type Aspension Dome."

Geiger's first long-span, cable-stiffened, pneumatic dome was the U.S. Pavilion at Expo 70 in Osaka (Davis, Brody & Associates; DeHarak and Chermayeff & Geismar). With a clear span of 465 by 265 feet, it was an engineering marvel. And at a cost of only $4.50 a square foot, it was economical. Inflated from the interior, the entire roof was held in tension and weighed only 1.5 pounds per square foot, compared with the Houston Astrodome, built five years earlier, which weighed in at a relatively hefty 30 pounds. Only four materials were needed for the primary structural system and enclosure: steel cables for the roof, which are attached to a reinforced-concrete ring beam, which is set into an earth berm, and, finally, vinyl-coated fiberglass fabric. The use of this particular fabric represents an early example of technology transfer. Geiger helped show off American ingenuity at the expo by choosing fire-resistant fiberglass developed by NASA for the roof.

His cable-stiffened dome for the fencing and gymnastics arenas at the 1988 Olympics in Seoul was a marvel as well. Here, he finally got away from the air-inflated domes, which rely on mechanical equipment

CONTINUING EDUCATION

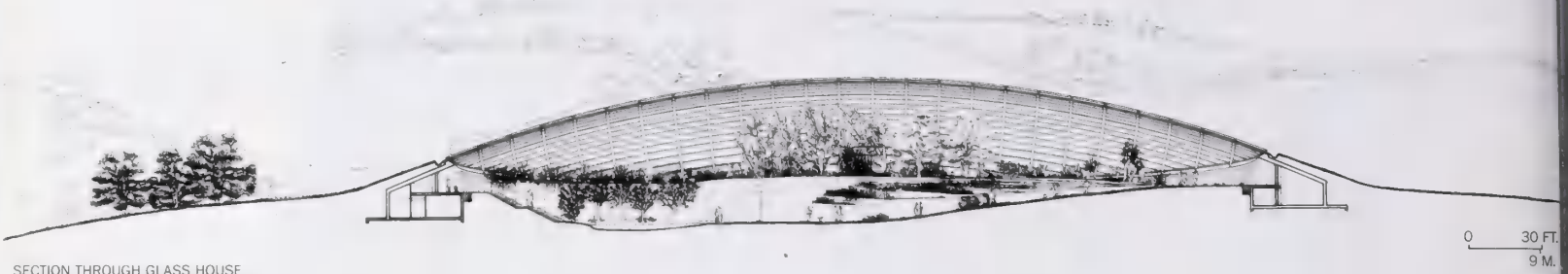
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA *Continuing Education article, as well as the Tech Brief on page 283. To receive credit, turn to page 366 and follow the instructions.*

LEARNING OBJECTIVES

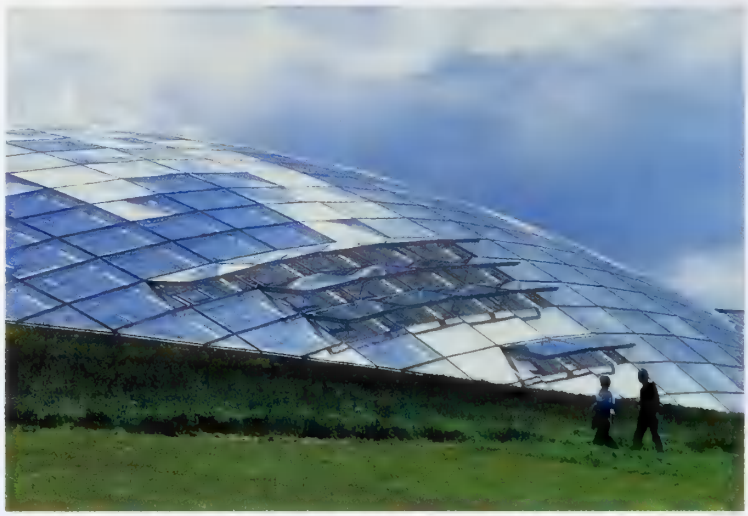
After reading this article, you should be able to:

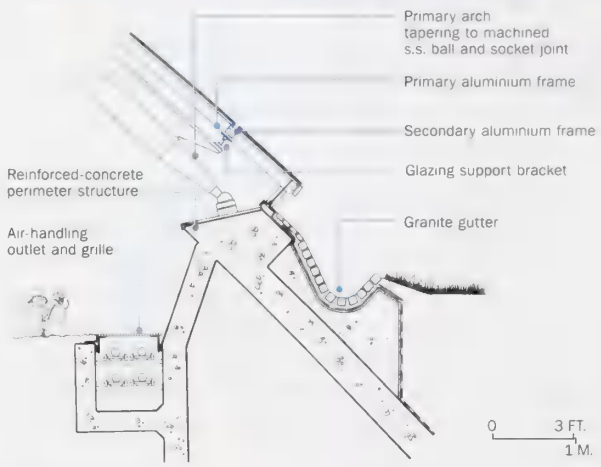
1. *Discuss innovations in long-span roof structures.*
2. *Describe the complexities in drawing and constructing domes.*
3. *Explain the structural systems used in dome structures.*

WWW For this story and more continuing education, as well as links to sources, white papers, and products, go to **architecturalrecord.com**.

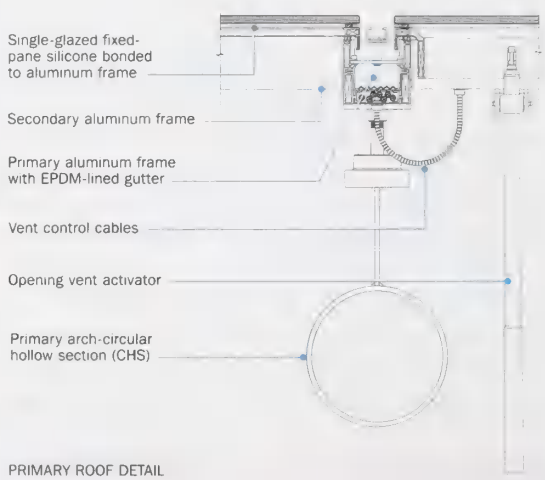


SECTION THROUGH GLASS HOUSE





PERIMETER SECTION



PRIMARY ROOF DETAIL

for their structural integrity. Campbell reminds us that pneumatically supported structures can and do deflate: "The most significant was the Pontiac Silverdome deflation in 1985 due to snow, followed by a wind storm that resulted in almost all the roof fabric being 'lost.' " At Seoul, Geiger lowered the roof profile, simplified the cable system, and delivered two self-supporting structures with 393-foot and 295-foot diameters at only $20 per square foot.

Spanning greater distances in more innovative ways has been a preoccupation of engineers and architects ever since—from the Georgia Dome (1992, Thompson, Ventulett, and Stainbeck; Matthys Levy; Weidlinger Associates) to the Millennium Dome (1999, Richard Rogers; Buro Happold) to the Eden Project (2002, Nicholas Grimshaw & Partners; Anthony Hunt Associates; Arup) [RECORD, January 2002, page 92]. Not all long-span roofs are tensegrity types, as evidenced by the three projects shown here, but they all share some ancestry with the Fuller and Geiger. While these three examples boast the tag line of "world's largest" in their respective categories, they also illustrate the harmonic convergence of architecture and engineering in exciting new ways.

Crystal palace

Wait 200 years to build another national botanic garden, then commission Foster and Partners to design the world's largest single-span glass house as its focal point. That'll bring the world's attention to a country. Foster, who resurrected the British Museum with a spectacular Great Court and launched it into the 21st century [RECORD, March 2001, page 114], has accomplished a similar feat with the Great Glass House at the National Botanic Garden of Wales in Carmarthenshire. The domed structure, 312 feet by 180 feet, will contain a Mediterranean climate for 100,000 plants.

The structure is reminiscent of Geiger's U.S. Pavilion at Expo 70. Both roof systems are supported on a reinforced-concrete ring beam resting on an earth berm. Whereas Geiger's roof was a vinyl-coated fiberglass fabric, Foster's pushed the envelope with CAD tools unavailable in 1970, to create an oval, torus-shaped glass dome. Because the complex geometry of the dome (the design of which is detailed in Tech Brief, page 283) was difficult to describe in conventional working drawings, the architect and engineer used a 3D CAD model, which was distributed to the steel manufacturer and concrete and glazing contractors with a set of explanatory drawings. The house is inclined to conform to the contours of the rural landscape, and the structure is bermed so that the dome appears to emerge naturally from a hill.

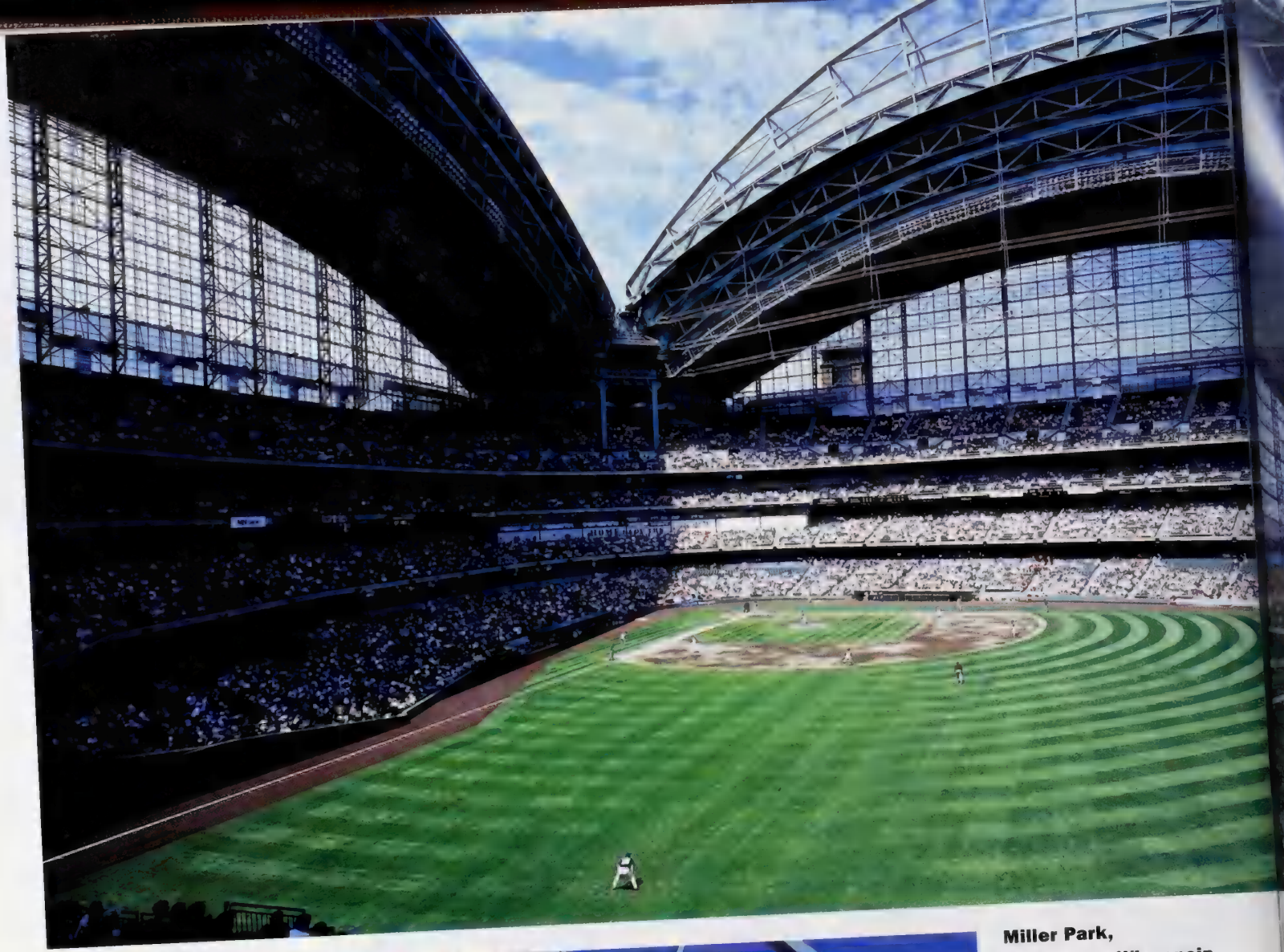
Construction was not easy and required surgical precision from all the trades. Fortunately, much of the steel, precast concrete, and glazing fabrication took place in the controlled environment of a workshop. The ring beam, being poured in place, was a bigger challenge and eventually required a surveyor to locate the x, y, and z coordinates in the field for the contractor. The beam upon which the torodial, glazed roof rests is close to





The Great Glass House, National Botanic Garden of Wales
Carmarthenshire, Wales
Architect: *Foster and Partners*
Structural engineer: *Anthony Hunt Associates*
Date of completion: *2000*
Roof span: *312 by 180 feet*
Consultants: *Watson Steel (structural steelwork); Metallbau Fruh (glazing)*

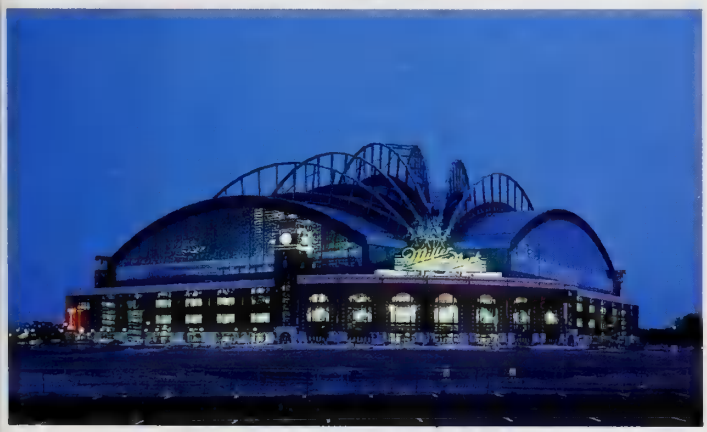
The Great Glass House (this page and opposite) is a torus-shaped glass dome covering a single volume. The continuous arched structure, supported on a tilted compression-ring beam, has few dimensional repetitions. The primary arches are a composite steel profile fabricated from a circular hollow section (CHS) with a tee section welded to the top (opposite, bottom detail). The arches terminate in machined, solid, stainless-steel ball-and-socket joints (opposite, top detail).





Miller Park,
Milwaukee, Wisconsin
Architect: *NBBJ Sports & Entertainment*
Structural engineer: *Arup*
Date of completion: *2001*
Roof span: *590 feet (retractable)*
Consultants: *Mitsubishi Heavy Industries of America (roof fabricator)*

Miller Park seats 42,500 spectators. A massive retractable roof provides an open-air stadium (opposite, top) on sunny days and a climate-controlled environment on cold or rainy days. When the roof is closed (above), a heating system keeps the seating bowl at 60 degrees when the exterior temperature drops below 30 degrees. No cooling is provided for the bowl, but the outfield wall opens for ventilation. In order to minimize the height of the dome while providing clearance for fly balls within the stadium, the dome panels hang from finlike trusses, creating a dramatic profile (below). A cable truss underneath (opposite, bottom) provides additional support.



grade on the south side and rises 23 feet above floor level on the north. It tilts to the south to maximize daylight transmission and away from the north to resist cold winter winds.

Twenty-four tubular steel arches span up to 189 feet, giving a clear height of 49 feet over the general floor level. The arches vary in length due to the oval plan and terminate in a ball-and-socket joint at the ring beam (see detail, page 268). By using this kind of connection, the engineers avoided having to fabricate unique end plates for each arch.

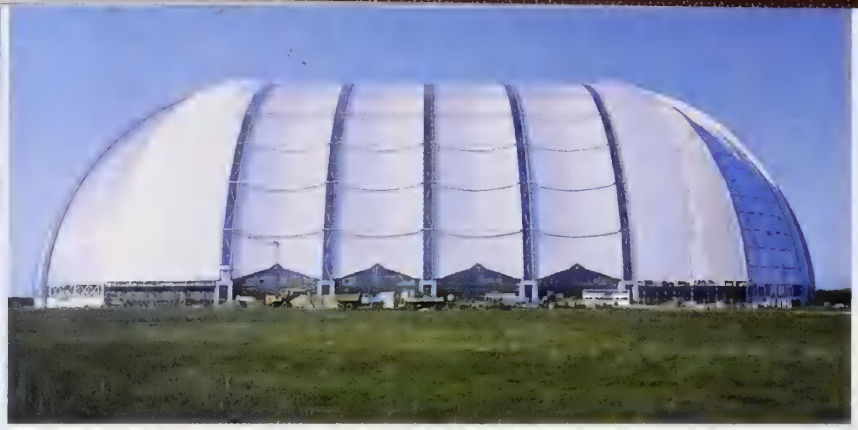
THE ARCHES VARY IN LENGTH DUE TO THE OVAL PLAN AND TERMINATE IN A BALL-AND-SOCKET JOINT AT THE RING BEAM.

The solid stainless-steel joint allows rotation, to prevent the transfer of moment stresses due to the thermal expansion of the steel members.

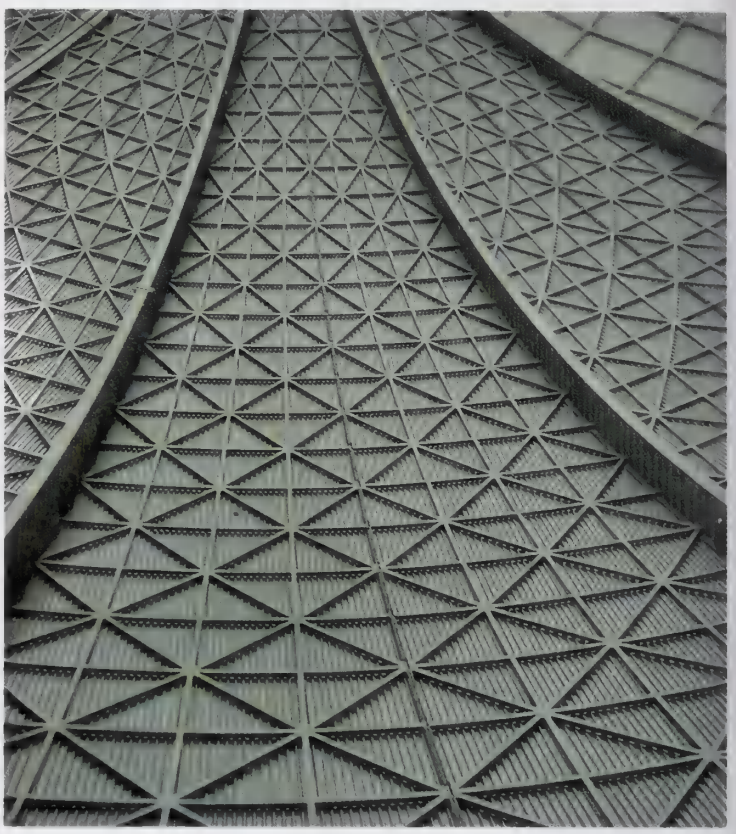
The glazing system is unique to this project. Trapezoidal panes of glass are bonded to an aluminum subframe, which sits over a fully drained framing system. The drains direct the rainwater, which is used to water the plants and flush the toilets, into two 18,500-gallon tanks. Natural ventilation is provided by 147 computer-controlled vents (see Tech Brief, page 283).

Play ball ... anytime

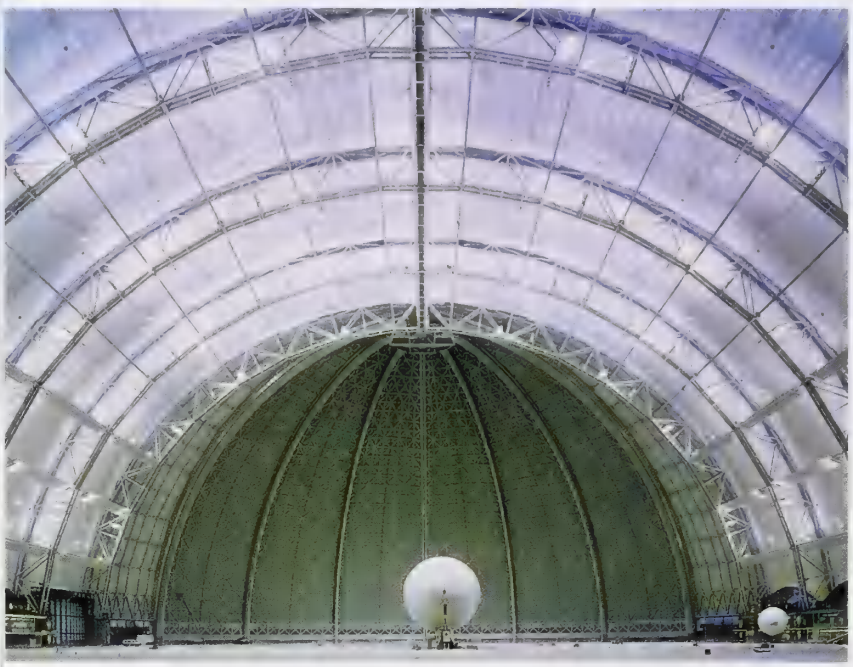
The world's first covered and air-conditioned superstadium was the Houston Astrodome (Wilson, Morris, Crain and Anderson, and Lloyd,



CargoLifter Airship Hangar, Brand, Germany
Architect: *SIAT Architektur + Technik*
Structural engineer: *Arup*
Date of completion: *2003*
Roof span: *1,190 by 738 feet*
Consultants: *Klöffel (building services)*



The design team minimized the weight and cost of the hangar's enormous doors (right) by cladding a horizontal, vertical, and diagonal grid with corrugated-metal sheeting. The PVC-coated stressed membrane (top left and above) that covers the structure spans 102 feet between the trussed tubular arches in the warp direction and between the ridge truss and edge cable attached to the arch bases in the fill direction. A small prototype for the CargoLifter sits inside the hangar (in the center, above).



Morgan & Jones; Walter P. Moore and Associates). It covers 150,000 square feet of playing surface and is covered by a skylit dome 642 feet in diameter. Not without the serious flaws that prototypes often have, it was nonetheless touted as the "eighth wonder of the world" when it opened in 1965, and became a huge tourist attraction. Since the city's National League team, the Houston Astros, left the Astrodome in 1999, the stadium's fate is uncertain.

Fast-forward 37 years and witness one example of how spanning a superstadium has evolved. Miller Park, the new home to the Milwaukee Brewers, opened in April 2001. Designed by Los Angeles–based NBBJ Sports & Entertainment, it's topped with one of the most advanced and elegant roofs in the U.S. Furthermore, it's the only fan-shaped, retractable roof of this scale in the world. Design principal Dan Meis calls the concept "drop-dead simple." Its panels pivot from a point directly above home plate following a radial line, which, unlike other linear stadium roofs, reflects the the layout of a baseball field and the motion of the game. "We were originally concerned about moving the panels on a radius," explains Meis, having feared that a fan-shaped design would be more expensive than the typical linear roof. "When we submitted a model for our design [to the client], we instructed the model maker to make the roof actually open with the push of a button, figuring that if it worked in model, we'd figure out a way to make it work in reality," says Meis.

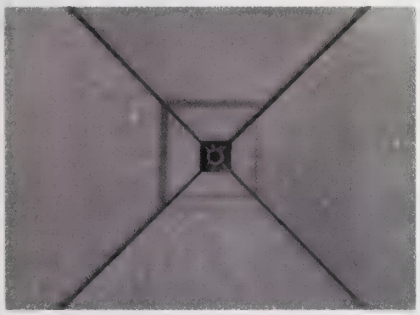
A retractable roof solves what might be called the Astrodome problem. When the roof glazing at the Astrodome produced too much glare for catching fly balls in the outfield, it was painted white. Of course, without proper daylight, the natural grass promptly died. Although this serious problem was solved by the immediate invention of AstroTurf, it did reflect the drawbacks of playing field sports inside. Miller Park does not have this problem. When the weather is cold and rainy, spectators are protected from the elements; the rest of the time, the games are played outdoors on natural turf, as they should be.

The $50 million, 12,139-ton, retractable roof, manufactured by

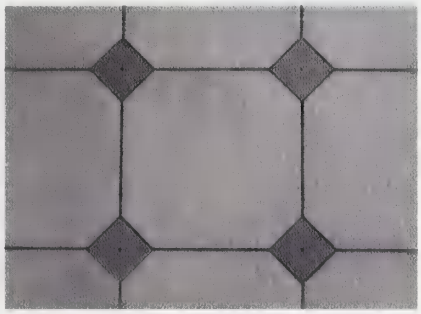


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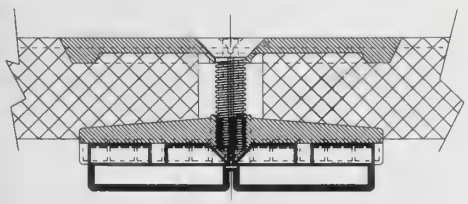






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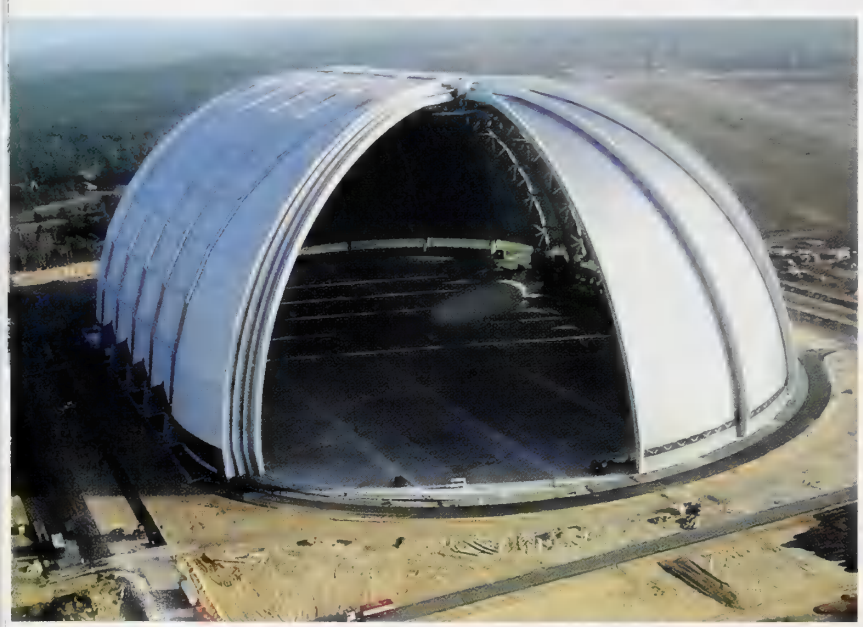


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External horizontal props between the top chords of the arches (above) restrain any torsion that might be caused by eccentrically connected membranes. The sliding doors (shown partially opened below)



are supported by a 3-foot-thick concrete slab. The doors can be completely opened in only 15 minutes.

Mitsubishi Heavy Industries of America, opens and closes like a fan in about 10 minutes. Two fixed panels span across the foul lines, forming the clerestory windows at the top. Electric bogeys move the other five panels to each side, which stack three on one side, two on the other.

The roof's unusual profile is the result of another design and engineering innovation. The upturns, or finlike trusses that support the panels, are on top of the roof. Typically, they support the roof from underneath. Meis explains, "Because the clearance must be 180 feet above second base [the maximum height a ball presumably can be hit], roofs with trusses underneath must be much taller than necessary to provide the required clearance." In this scenario, however, the structural system is inverted, requiring only a cable truss on the interior. This achieves a lighter, less bulky roof.

Of course, something has to hold up any roof, and here the materials statistics for the whole park are rather staggering. The 1,200,000-square-foot park includes 25 miles of deep piles, 70,000 cubic yards of structural concrete, 4,600 pieces of precast concrete, and 9,000 tons of steel. The sum of these materials is enough to build a 50-story building.

The cargo hangar

Everything old is new again. It's been 50 years since Germany manufactured its famous Zeppelins. Now a company called CargoLifter AG is developing airships (named CL 160s) to transport goods—generators, turbines, and oil drills—up to 176 tons over a distance of 6,000 miles. By definition, these flying cranes are technically blimps—helium-filled with no rigid skeleton. Without a metal chassis, so to speak, the CL 160s are lighter and, therefore, able to carry more cargo weight.

The company needed a hangar with a volume of 194 million cubic feet in which to build and store these airships. At 1,191 feet long by 225 feet wide and 351 feet tall, CargoLifter AG got "the world's largest

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self-supporting enclosure." Far from a merely utilitarian shelter, the hangar has many clever elements in which the architecture is integrated into the structure—or vice versa, depending on one's viewpoint. This suggests a palpable collaboration between architect and engineer at the grandest of scales.

Every detail has multiple functions and meanings writ very large. According to Arup, who engineered it, the hangar imitates the blimps' design in the quest for lightness. Five steel arches and a ridge girder support the barrel-shaped midsection. The arches, trussed and cross-braced to withstand wind and torsion, are anchored in U-shaped, reinforced concrete plinths above grade, which also act as covered entrances that, in turn, protect employees from snow sliding off the high fabric roof. The arches are glazed between the top chords, allowing daylight into the building. These "arches of light" also serve as egress beacons, guiding the way to emergency exits at the termination of each arch.

FAR FROM A MERELY UTILITARIAN SHELTER, THE HANGAR HAS MANY CLEVER ELEMENTS IN WHICH THE ARCHITECTURE IS INTEGRATED INTO THE STRUCTURE.

The membrane stretched between the arches consists of four layers of PVC-polyester mesh and is translucent to bring in additional daylight, which is supplemented by bright spotlights whose beams are diffused by large mirrors. The mesh layers form air pockets that provide thermal insulation. PVC membrane was chosen for three reasons: It's lightweight, has a life expectancy of at least 20 years, and has enjoyed 30 years of being successfully engineered.

They're called doors, but bear little resemblance to any other kind. Semicircular in plan and a quarter of a sphere in three dimensions, they have an arch length of 551 feet (by comparison, the height of the Statue of Liberty is 153 feet), and the designers had to minimize the tonnage of steel to keep the costs from being exorbitant. The solution illustrates the shell principle. The inner part of each of eight door panels is made of identical horizontal, vertical, and diagonal steel members and clad with corrugated-metal sheets. The panels slide along motorized rails in two directions—three slide inside of each other and nest into one fixed panel in each direction. When closed, the panels form smooth, tightly fitting spheres.

Although David Geiger died suddenly in 1989 at the age of 54, his firm continues his work and still focuses primarily on long-span construction, adapting and improving on the Cabledome in each new project (see Tech Brief, page 286). Could these engineers design a span across an entire city? The answer is, probably. In 1950, Bucky Fuller proposed to cover a large portion of midtown Manhattan with a transparent, climate-controlled dome 2 miles in diameter. Although it may sound far-fetched, the concept is technically and economically attainable. One day soon there might be a compelling reason to do just that. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Buckminster Fuller's Dreams of Spanning Great Distances Are Being Realized in Big Projects" using the learning objectives provided. Then read the Tech Brief on page 283.**
- **Complete the questions below, then fill in your answers (page 366).**
- **Fill out and submit the AIA/CES education reporting form (page 366) or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. Tensegrity describes which structural relationship principle?
a. continuous tensional behaviors
b. exclusively local compressional behaviors
c. continuous perimeter compression

2. Which of these is the prototype for all long-span tensile membrane roofs?
a. Geodesic dome
b. Cabledome
c. Astrodome
d. Aspension Dome

3. Only the following materials—fiberglass fabric, steel cables, a concrete ring girder, and an earth beam—were needed for the primary structural system and enclosure of which project?
a. U.S. Pavilion at Expo 70
b. Cabledome
c. Astrodome
d. Miller Park

4. Which structure has the only fan-shaped retractable roof?
a. U.S. Pavilion at Expo 70
b. Cabledome
c. Astrodome
d. Miller Park

5. Which is the disadvantage of a stadium roof with trusses underneath?
a. it is a less bulky roof
b. it uses a cable truss on the interior
c. it must be taller for clearance inside
d. it causes interference with high balls

6. Why is the CargoLifter CL 160 hangar covered with translucent PVC mesh?
a. to provide natural ventilation
b. to bring in additional daylight
c. to allow for the shape of the blimps
d. to withstand the wind

7. Which element is the same in both the U.S. Pavilion at Expo 70 and the Glass House at the National Botanic Garden of Wales?
a. vinyl-coated fiberglass roof
b. concrete ring beam resting on an earth beam
c. an oval glass dome
d. tubular steel arches

8. Why does the Glass House at the National Botanic Garden tilt to the south?
a. to maximize daylight inside
b. to catch the rainwater for watering plants
c. to maximize southern balmy breezes
d. to align with the magnetic north pole

9. The Glass House ventilation system is computer controlled for which?
a. temperature
b. wind speed
c. humidity
d. all of the above

10. The x, y, and z coordinates of the oval Glass House were tied to which?
a. traditional survey grid lines
b. fixed landmarks
c. Wales National Ordnance survey grid lines
d. both fixed landmarks and Wales National Ordnance survey grid lines



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New power pricing affects conservation

By Lindsay Audin

Power marketers and some utility companies are now providing end-users with choices regarding how their electricity is priced, and that has been making engineers and architects reevaluate how they control energy consumption in buildings. Different pricing methods can drastically change the practicality of many energy-efficiency measures, so those who advise clients about which strategies are best must be as cautious as those who finance, purchase, and install them for their buildings.

For decades, engineers and architects have designed systems that control energy usage based on prevailing prices and a known rate-of-return or payback period. Conservation measures from insulation to lighting were judged on how quickly their cost could be recuperated by energy savings. This method for placing a value on improvements was reliable because energy pricing was either stable or else changed for everybody at the same time. Few customers got better prices than others.

Today things are different. As a result of the deregulation of natural gas and electricity, it is quite possible for several adjacent buildings to have very different pricing regimes. Building A might have a flat pricing structure for electricity; building B may operate under a standard electric tariff; while building C could pay a different price for power each hour of the day.

Lindsay Audin is the president of Energywiz, an energy and technology consulting firm (energywiz.com).

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Understanding deregulated utility pricing

Regulated electric rates usually charge commercial and industrial customers separately for power consumed during peak and off-peak periods. Each charge represents a different line item on a monthly bill. Under a utility's standard electric tariff, where competitive pricing prevails, the part of the customer's bill covering transmission and distribution remains regulated but may have shrunk to less than a third of the total, minimizing the impact of variations in its cost.

In another scenario, a customer buying power from an unregulated vendor could elect to be charged a flat rate for all power consumed, regardless of the time of day. In essence, the usual peak-demand charges for the generation portion of the cost of power have been "folded" into the overall energy charge, making on-peak and off-peak power cost the same, regardless of how much power is consumed during the peak-demand period. Alternatively, customers may buy energy at a real-time, or market-based price, in which the amount charged changes hour-by-hour based on the current wholesale price for electricity. These users may see their costs vary widely from month to month depending on market conditions such as the weather or consumer demand, or other factors, such as a power-plant outage.

Why would a customer choose one or the other of these seemingly extreme pricing options? Some, wishing to avoid price fluctuations common under deregulation, are apt to jump at the certainty offered by flat pricing. Other customers, like industrial plants, who can cut their load during peak times, may choose real-time pricing. This allows them to make money by cutting load when power is very expensive, while powering up their plants at times when power is cheap.



The good, the bad, and the profitable

So what happens when the electric-usage pattern of a customer changes due to installation or upgrade of an energy system? That depends on the interaction between the system and the pricing structure.

An energy-management system, for example, may cut off-peak power use by turning lighting and fans off when a building is not in use. Relative to the old utility tariff that separately charged for energy and peak demand, a fixed-price rate structure increases the value of saved off-peak kilowatt-hours (kWh), shortening the payback period for energy-conservation measures that save off-peak power.

But a customer who elects to buy power on a real-time-price contract will likely pay less for off-peak kWh, making the conservation of off-peak energy less lucrative. Even occupancy sensors, which usually turn off lights during off-peak hours, must be more carefully analyzed for cost-effectiveness.

Here's an example. A university in New York City wants to install a thermal storage system to cool a building by using ice made at night, when power is usually cheap, instead of running an electric chiller for cooling during summer peak-demand hours. The difference in cost between nighttime off-peak power ($.05/kWh) and more costly daytime power ($.25/kWh, with peak-demand charge included) comprise most of the savings from

such systems. But what if the university's purchasing department opted for a flat-rate contract? Then, all power would cost the same ($.14/kWh), whether it was day or night. When the cost differential is eliminated, the dollar savings from thermal storage may be greatly reduced. Even though using the ice-making equipment still cuts peak demand, the payback period for installing it nearly triples, from 4 years to 12 years, making it economically unfeasible.

In a second example, a cost analysis of a daylighting-control system in the Chicago area came to a similar conclusion. An office building with an energy-management system that automatically dims common-area and perimeter interior lighting would reduce both consumption and peak-demand charges under an old energy price structure. This isn't true under a flat-rate contract, where a daytime kilowatt hour that once was $.12/KWh is worth $.07/kWh under the flat-rate contract, because the demand charges are averaged together with the energy charges. On the other hand, if the power is purchased in real time, that daytime kWh could be worth up to $.50/kWh. Unfortunately, because the market price is always fluctuating, that value cannot be relied upon to compute an ensured payback period. A price that varies in real time, based on wholesale power markets, may result in that kind of super-high charge only a few hours a year, once again raising questions regarding how quickly an expensive dimming system would pay for itself.

And, there's still another wrinkle. Some power contracts include a "usage clause." Such clauses penalize customers if they reduce usage beyond an allowable level, for example, if they use 10 percent less than the amount they consumed the year before. The effects of any conservation effort must now be calculated to avoid triggering this penalty or else double-checked to see that the net savings will still justify the investment.

This new reality simply means that energy-efficiency strategies must now be coordinated with power-purchasing strategies. If the purchasing department changes billing contracts without considering how it might affect energy-conservation measures, options that could result in overall lower costs might become impractical. Unless something better than the fixed-rate pricing regime is acceptable, it may be necessary to avoid deregulated energy pricing. Economical operation of the customer's HVAC plant may require that it remain on a "bundled utility service," one that charges separately for demand and different rates for on- and off-peak power.

Before advising a client on energy-conservation strategies, talk with a few power vendors. Some are happy to provide the best of both worlds: flat pricing during part of the year, and a floating price that is sensitive to peak-demand conditions during the summer months. Sometimes separating central plant loads from those that are unlikely to vary during the year—offices, for example—into different meters and accounts may also make sense. Doing so could allow one part of a building to be charged a variable price and another part a fixed rate. Such sophistication may not be possible with existing buildings but may work in new facilities. ■

WHEN ELECTRICAL BILLING CONTRACTS ARE CHANGED, ENERGY-CONSERVATION MEASURES CAN BECOME IMPRACTICAL.



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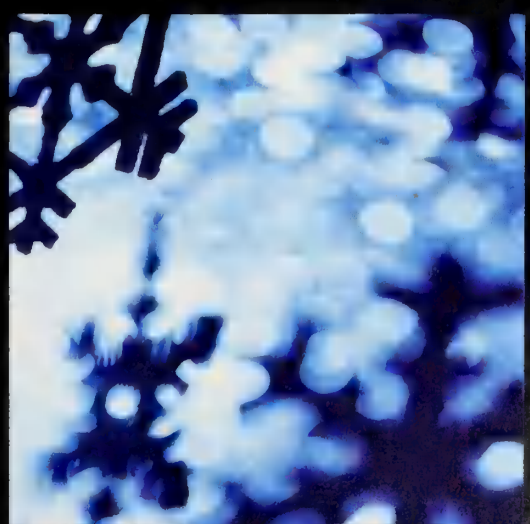


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Tech Briefs

3D CAD models make highly complex geometry possible in glass house • Seismic upgrade gives new life to university building • A tensegrity dome gets rigid

Structural engineers build a virtual 3D model of Norman Foster's Glass House in Wales

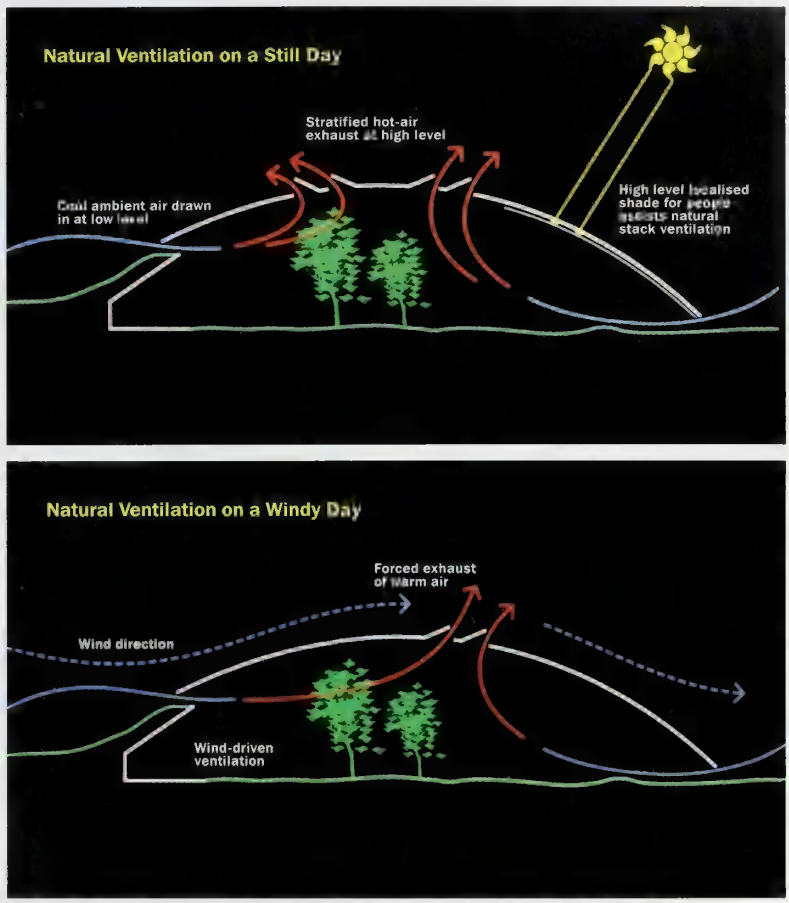
Techno-wizardry has sprouted at the National Botanic Garden of Wales, where Foster and Partners designed the Great Glass House (See Building Science, page 267), a dazzling elliptical dome of a greenhouse that's tipped 7 degrees off the horizontal to turn its glazed face to the southwestern sunlight. In bringing the project to life, the designers took full advantage of digital tools for design, construction, and operation.

Foster and Partners teamed with structural engineering firm Anthony Hunt Associates to build a 3D virtual model of the Glass House, using Bentley's MicroStation CAD software. The dimensions of the building, which is oval in plan, were determined by plane cuts of a torus, says Nigel Curry, associate at Foster and Partners. Its superstructure is described by the structural engineers as a "multiple steel arch toroidal" dome with a single-glazed roof derived from two orthogonal circular arcs of different radii. Several digital models were developed and evaluated by the structural engineers; only three physical models were built to help refine shape and siting. "The building's unusual form would have been impossible to analyze for structural performance without the number-crunching capabilities offered by today's computers and software," says Wolf Mangelsdorf, an associate at Anthony Hunt.

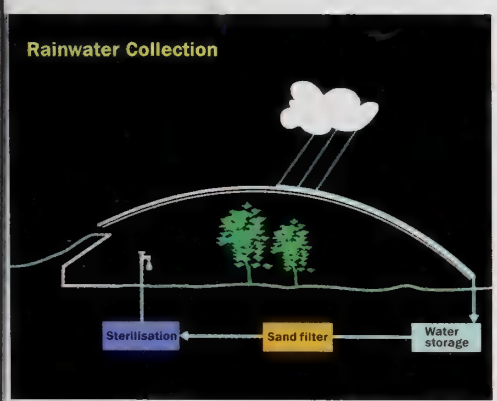
Designing in cyberspace is one thing; assembling a building in glass, steel, and concrete is quite another. The dome's complex geometry meant nearly every one of the 785 trapezoidal panes of glass for the roof, along with the components of the aluminum frame and subframe, had to be cut to a different shape and size. Double-curved soffits and walls curve in plan and vary in height; some slope as much as 70 degrees to the horizontal. Construction tolerances were a mere 10 millimeters. Essentially, erecting the Glass House became a challenge similar to piecing together an enormous 3D jigsaw puzzle.

To meet such exacting standards, Foster and Partners sent the CAD files to the steel manufacturer and the concrete and glazing contractors, who used them to fabricate components precisely. Traditional grid-line offset methods of surveying at the building site weren't going to cut it for construction, either. Instead, the builders were asked to create their own coordinate system for the building, based on the path and center lines of the CAD model. Using a high-precision theodolite, the builders then transferred the building's x-y-z spatial coordinate system to the site, tying it into the Wales National Ordnance Survey Grid and to fixed landmarks. "This was seen by all as the most efficient way of building, [given the structure's complexity]," says Curry. Prefabricated components were marked by grid and unit references to ensure they were placed correctly. During construction, the CAD model was updated and reissued as needed to reflect the latest conditions.

Some 100,000 Mediterranean plants thrive under the dome's cover. Using natural ventilation within the Glass House was not only environmentally sound, it was necessary to ensure that the plants could tolerate the decidedly unbalmy climate of Wales. Environmental consultants Max Fordham and Partners examined airflow through and around the Glass House using finite element analysis, with programs and spreadsheets they developed in-house. The Glass House's glazing system is equipped with 147 computer-controlled vents, which open outward or close automatically depending on temperature, wind speed, and humidity. Sensors both outside and within the structure gauge and respond to ambient conditions constantly, and the computers that control the vents receive up-to-date weather forecasts via a link to a local meteorological center, so that operators can make adjustments as needed. *Deborah Snoonian*



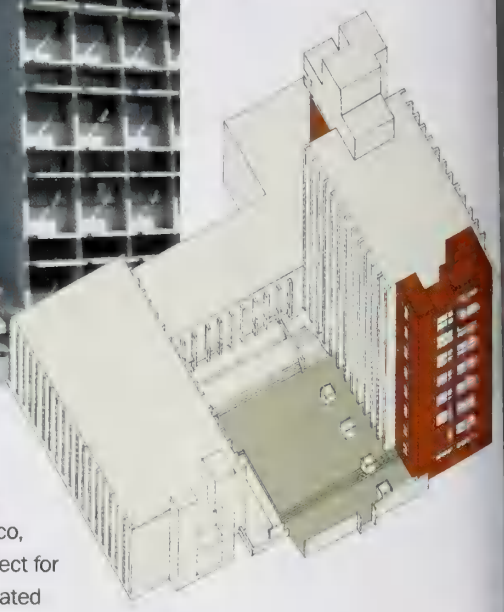
Using finite element analysis, environmental consultants designed a system of natural ventilation essential to maintaining a Mediterranean microclimate, using 147 computer-controlled vents.



The roof channels rainwater into two 18,500-gallon tanks to be used to water plants and flush toilets.

University uses a seismic upgrade to enhance the learning environment





New shear walls stabilize the existing stair tower (left). A new, larger east tower (below in red) will buttress the studios and provide additional classroom space. Diagrams (bottom) show how vertical loads will be transferred after an earthquake.

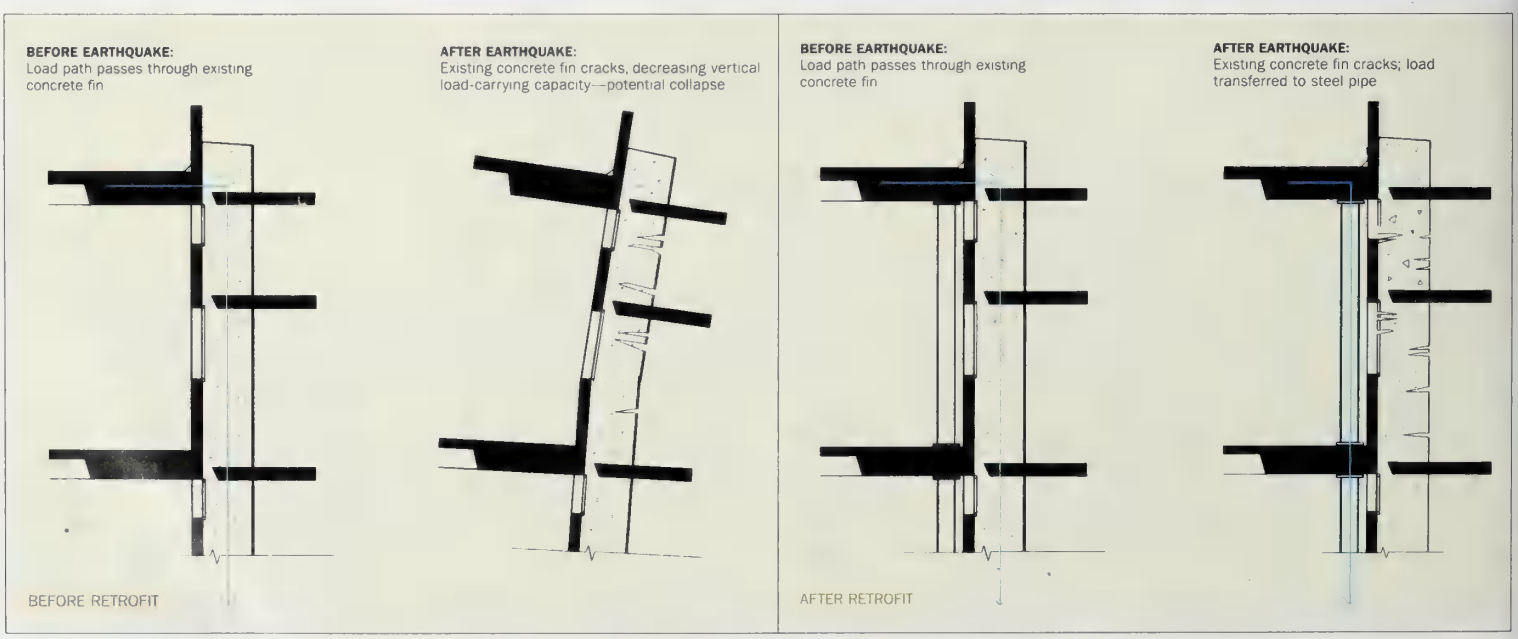
To its fans, Wurster Hall presides (or looms, according to its detractors) over the southeastern slope of the University of California, Berkeley. And because this concrete Brutalist building is home to the Department of Architecture, it provokes outspoken, often conflicting, opinions from usually oblivious passersby. There was unequivocal agreement, however, about the results of a 1998 campus survey that rated its chances of standing up after the next earthquake as "very poor"—meaning the building would likely suffer extensive damage and might even collapse in a major temblor. No argument was heard against making a priority of the seismic retrofit of a building that lies 100 yards from the Hayward fault, is occupied 24 hours a day, and houses the Departments of Landscape Architecture, Architecture, and City and Regional Planning.

Wurster Hall, which opened its doors in 1965, was designed by a faculty team consisting of Joseph Esherick, Vernon DeMars, and Donald Olsen, each of whom had his own firm at the time. Joseph Esherick's office did the working drawings. From the projecting concrete sunshades and exposed ductwork, piping, and conduit to the rough plywood and unfinished concrete wall surfaces, the idea for the design was that systems would be apparent and the building itself would act as a learning laboratory. What couldn't be seen—or even known in the '60s—were the structural weaknesses that make the building so susceptible to a seismic meltdown.

The reinforced concrete structure is a 210,000-square-foot, asymmetrical composition enclosing three sides of an east-facing courtyard. On the north side is a 10-story tower that houses the design studios on the fourth through ninth floors. To the south is a four-story wing. A three-story structure connects the two wings and also creates an east-west connection. The lobby inside the west-facing entrance provides the vertical and visual relationship between the first-floor auditorium, café, and classrooms and the second-floor library, departmental offices, and courtyard.

Esherick's successor firm, EHDD of San Francisco, was selected as the architect for the seismic retrofit and related design work. Rutherford and Chekene were the consulting seismic engineers. The team was charged not only with solving the seismic problem but responding to strong and potentially conflicting opinions about how to preserve the building and enrich it. "The Dean of the College of Environmental Design, Harrison Fraker, charged us with finding opportunities to enhance the teaching environment in the course of providing the appropriate seismic solution," says the project architect, Jennifer Devlin of EHDD.

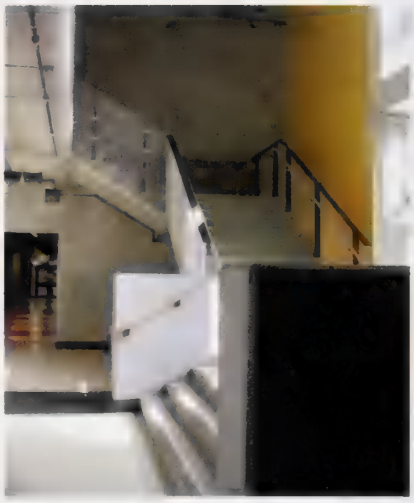
"The predominant weakness in the building was in the east-west direction. We now know that discontinuous shear walls, which were typical in the '60s, are insufficient. They lose their integrity, and the columns alone would be unable to




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support the building," explains Afshar Jalalian, senior associate at Rutherford and Chekene. Solving the shear in the tower was the overriding design challenge, as it was relatively easy to locate shear walls in the lower wings.

Five alternatives for strengthening the tower were considered during the conceptual phase: perimeter, interior steel bracing; interior shear walls; an exterior macro frame around the entire tower; demolishing the tower altogether; and, finally, adding external buttresses. One by one, the first four solutions were eliminated for reasons ranging from cost to infeasibility. Ultimately, the architects selected external buttressing, for having the least impact on the appearance of the building and being the best option for spatial enrichment. This reinforcement was needed only in the east-west direction, so it could be more readily blended in with the solid ends of the tower. The new east tower is considerably larger than the existing stair tower. Besides providing buttressing against earthquake ground movements, the new structure will provide badly needed seminar space at the ends of the studios. This will increase the studio space and provide a new place for data cabling and power needed in computerized studios.



The reconstructed lobby stair.

The west tower was strengthened by adding a 6-inch reinforced concrete jacket that was integrated into the existing structure through vertical strips that were removed and repoured along with the jacket. The neat joints will be visible from the interior, revealing once more how the building is put together. The effect on the external appearance of the building is negligible. The gravity loads are carried by interior columns and exterior fins. Both are extremely brittle and would be unable to withstand the horizontal motion without failure. The interior columns were wrapped with a glass-fiber composite that is as thin as a piece of cloth. It is run through epoxy glue and then wrapped around the columns to hold them together. The finish adds no more than ¼ inch to the exterior dimensions. The fins were provided with supplemental supports, pipe columns—18 inches at the lower level and 8 inches at the top—placed at every fourth bay.

"The west-tower shear walls, which extend through the building to tie into the foundation, caused a reconfiguration of the lobby stair and that created an opportunity to open up the lobby and improve the connection to the library and the rest of the second floor," says Devlin. The ripple effect of the seismic reconstruction means that the library has also been reconfigured for ADA compliance as required in areas affected by a seismic retrofit. She continues, "We were also asked to provide new thinking about how to use the space for teaching, and the library has really become the heart of the building." Dean Fraker, who has raised donations to fit out new spaces and refinish older ones, comments, "All told, the work has been done mostly within the existing envelope and the building vocabulary. It is most noticeable from the courtyard, where we now have twin towers, but even that work is subtle and sympathetic."

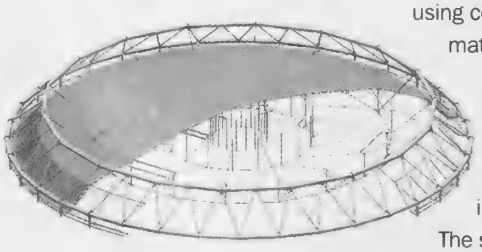
All this work didn't come inexpensively, however, and the state didn't share the dean's broad view of the scope. It limited its financial contribution to the minimum number of walls, slabs, and enclosures needed to achieve the seismic solution, which amounts to approximately half of the $32 million cost of the entire project. The balance of the costs have been picked up by the university, and donations were raised by the College of Environmental Design. *Barbara Knecht*

Bucky Fuller's concepts continue to evolve in Geiger Engineers' long-span roofs

In 1994, the Convention Authority of Cumberland County, North Carolina, commissioned Charlotte, North Carolina–based Odell Associates to design a 13,000-seat multipurpose arena in Fayetteville. Suffern, New York–based Geiger Engineers, pioneers in long-span roof systems, adapted its Cabledome system to cover the space in a way never realized before.

In 1984, David Gerger, founder of the eponymous engineering firm, developed the Cabledome from Buckminster Fuller's tensegrity dome (see Building Science story, page 267). As with all tensegrity domes, the Cabledome was meant to be clad with tensile membranes, most often translucent Teflon-coated fabric.

The Crown Coliseum needed a completely opaque roof, so the engineers substituted a rigid secondary structure for a tensile membrane, using conventional construction materials and techniques.



This hybrid Cabledome system is a cable-strut network consisting of a perimeter compression ring in the form of a conical truss. The secondary roof structure is conventional—metal deck, open-webbed bar joists, and steel girders, assembled into 18 pie-shaped panels, which "float" directly on the cable-strut network, supported only at the corners on the masts as shown in the diagram at left.



The Crown Coliseum in Fayetteville, N.C., is the first known tensegrity dome employing a conventional rigid structure of steel joists and metal deck.

Principal David Campbell maintains that Crown is "the first rigidly clad tensegrity-type dome in the world"—but perhaps not for long, as this project demonstrates its utility where tensile membrane is undesirable. *Sara Hart*



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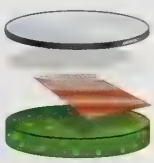
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Digital Architect

The case for a digital master builder

By Deborah Snoonian, P.E.

A recent symposium sponsored by the Department of Architecture at the University of Pennsylvania began with a promise. "This is not going to be about blobby forms," said Branko Koralevic, associate professor and director of Penn's Digital Design Research Laboratory, in his opening remarks at *Designing and Manufacturing Architecture in the Digital Age*, which took place in late March [Note: RECORD publisher McGraw-Hill was a conference sponsor.] The audience of 150 smiled knowingly at his comment, perhaps even sighed with relief—blobs are so *passé*.

The two-day event was an international assembly of cutting-edge practitioners and researchers who discussed the role of digital technology in design and practice. The presenters went beyond merely marveling at innovative architectural forms (hence, the no-blob promise) to bring forth examples of new fabrication technologies, CAD/CAM innovations, mass customization, and other digital tools put to use on current and planned projects. Above all, architects were urged to harness the power of technology for all stages of design and construction; in other words, to reassume the role of the master builder.

A technological crossroads

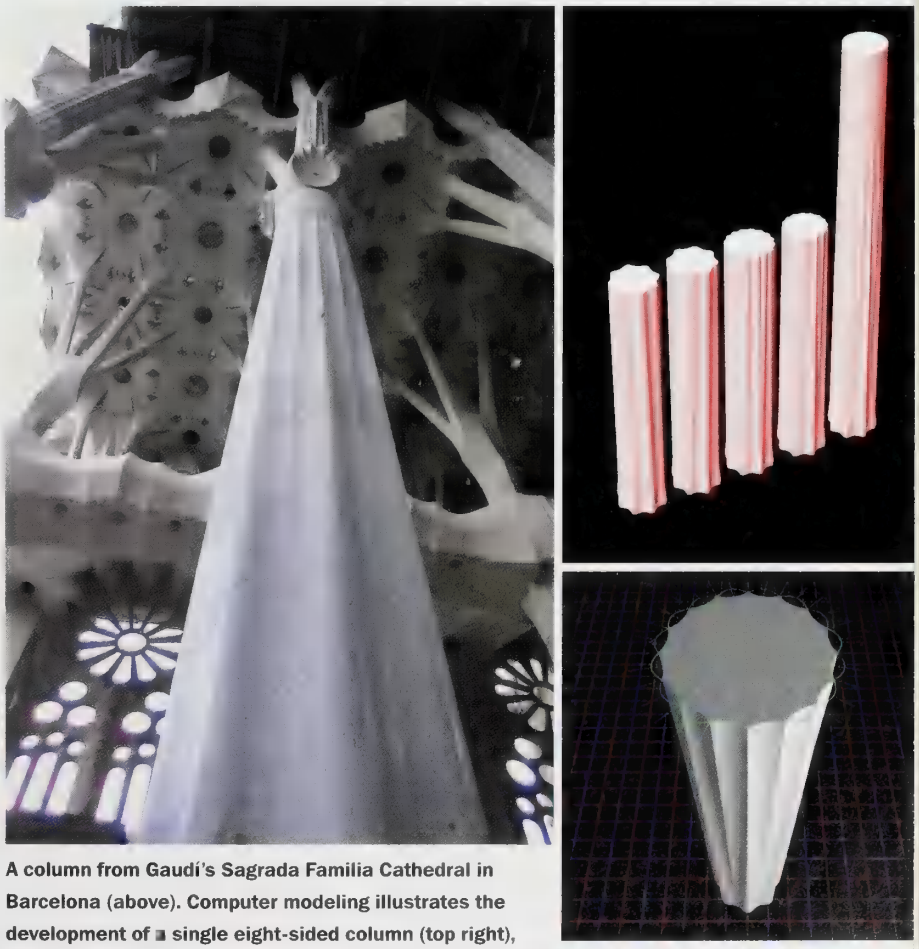
The old Chinese maxim "May you live in interesting times" applies today to architects with respect to computing. CAD software and other productivity tools have automated some laborious tasks over the past two decades, but they haven't fundamentally changed the way architects practice. But new tools offer that promise, and Koralevic wants designers to overcome their ambivalence about technology. "Architects have a chance to regain ground they've lost to contractors and other parties," he said. "We can overthrow traditional construction techniques, with profound consequences."

William Mitchell, dean of MIT's school of architecture, framed the event by envisioning a future of "information-rich design worlds linked to fast, programmable construction machines." MIT's Media Lab is exploring design tools with unique interfaces; one of the most intriguing is called Illuminating Clay, which lets designers analyze free-form clay models. The model's geometry is captured in real time with a laser scanner; using this information, computer simulations of conditions such as shadow casting, land erosion, or visibility are calculated and projected back onto the clay model. A designer can change the model's shape and see the effects of those changes right away, which allows design options to be explored rapidly without having to type in data. Think about it: Would you miss your CAD software? Your keyboard? Your computer screen?

Digital gurus at work

Several speakers, many from outside of the U.S., presented a compelling case that technological advances were integral to achieving design goals for a wide variety of projects.

Mark Burry, who is professor of innovation at RMIT University in Melbourne, Australia, has been involved in completing the construction of Antonio Gaudí's Sagrada Familia Cathedral in Barcelona since the 1970s. Construction began on the church in 1889, but it was unfinished when Gaudí died in 1926. The design's documentation was incomplete because many of the 1:10 scale plaster models he left behind were destroyed in the 1930s. Burry has taken photos, drawings, and surviving shards of the models and analyzed them with parametric design software to fill in the missing gaps. The software was essential for



A column from Gaudí's Sagrada Familia Cathedral in Barcelona (above). Computer modeling illustrates the development of a single eight-sided column (top right), which shows a gradual addition of sine curves in cross section (bottom right). The sine curves undergo phase shifts as the column rises from base to capital.

www For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **architecturalrecord.com**.

resolving the complex geometries Gaudí had conceived, Burry said. He estimates it will take another 40 years to finish the cathedral.

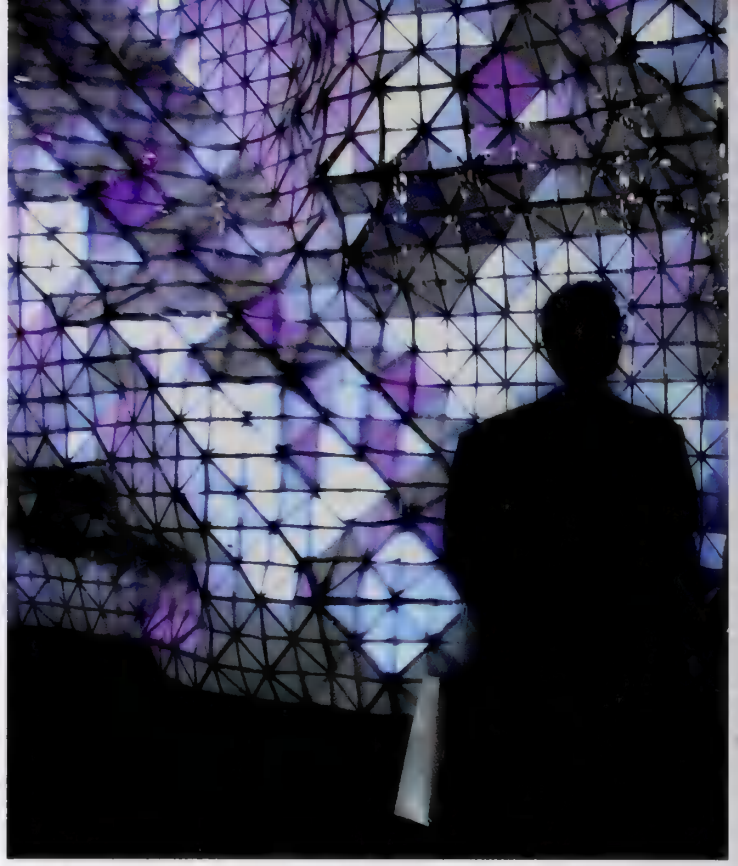
Mark Goulthorpe, principal of dECOi Architects of Paris, presented a range of projects that used digital manufacturing tools and other research. Blue Gallery, an exhibition space in London, boasts sinuous curves reminiscent of seashells. It was built entirely of nonstandard wood, fiberglass, and aluminum components, many fabricated with computer numerically controlled (CNC) machines. Construction tolerances for the project were a mere two millimeters. (Sadly, the project was intended as an experimental effort, and the artists had such regard for the space that they wouldn't hang their work in it. The gallery was dismantled shortly after it was completed.)

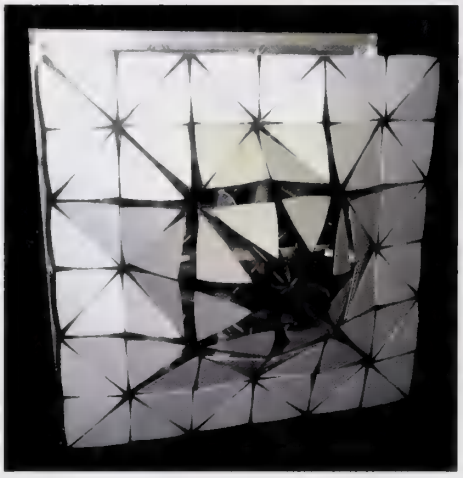
Another dECOi project, the Aegis Hyposurface, was commissioned in a competition sponsored by the Hippodrome Theater in Birmingham, England. It's a curtain of steel mesh mounted on computer-controlled pistons, which slide back and forth in response to external "stimuli" such as movement, light, and sound. "The project was designed to show on the outside the events that are happening inside [the theater]," said Goulthorpe. A collaborative effort between dECOi, RMIT's Burry, and leading researchers in solid geometry and electronics, the project garnered top honors at the 2001 Far East International Digital Architectural Design (FEIDAD) Awards.

Two firms renowned for techno-prowess—Foster and Partners and Gehry Partners—presented different ways of using digital tools to achieve design goals. Hugh Whitehead, from Foster and Partners' Specialist Modeling Group, discussed the design of the Greater London Authority Headquarters along the Thames, whose energy-efficient form he likened to a "parametric pebble." A 3D digital model of the structure was created in Bentley Systems' MicroStation software, then rationalized into panels to refine the glazing and structural-steel systems. Fabricators and the construction contractor were required to develop their own digital models based on the firm's data to ensure that components would be machined to required tolerances and would be assembled correctly at the site. Instead of a traditional grid-line offset survey, the 3D building model was linked to known locations at the site. The builder even attached holographic targets to connections in the structural-steel system, which were laser-scanned on-site so that steel beams were inserted in the correct position.

For Gehry Partners, the physical model precedes the virtual one. When designing L.A.'s Disney Concert Hall, models were built, laser-scanned, and brought into CATIA software for analysis and refinement. "We don't do rationalization," said principal James Glymph. "We produce shaped, sculptural forms that stay as is." The project, begun in 1989 and halted in 1994 due to budget concerns, benefited from more acceptance of computing in design when it was restarted, post-Bilbao, in 1997.

Gehry's swooping forms are notoriously challenging to build. The concert hall, with its demanding seismic and acoustical requirements, is so complex that a 4D CAD visualization tool was developed by Disney and Stanford University (soon to be licensed commercially) to show its erection sequence over time. The team uses the 4D model to identify and correct construction problems before they happen.





The steel curtain of the Aegis Hyposurface (above) is attached to a grid of sensor-activated pistons (left).

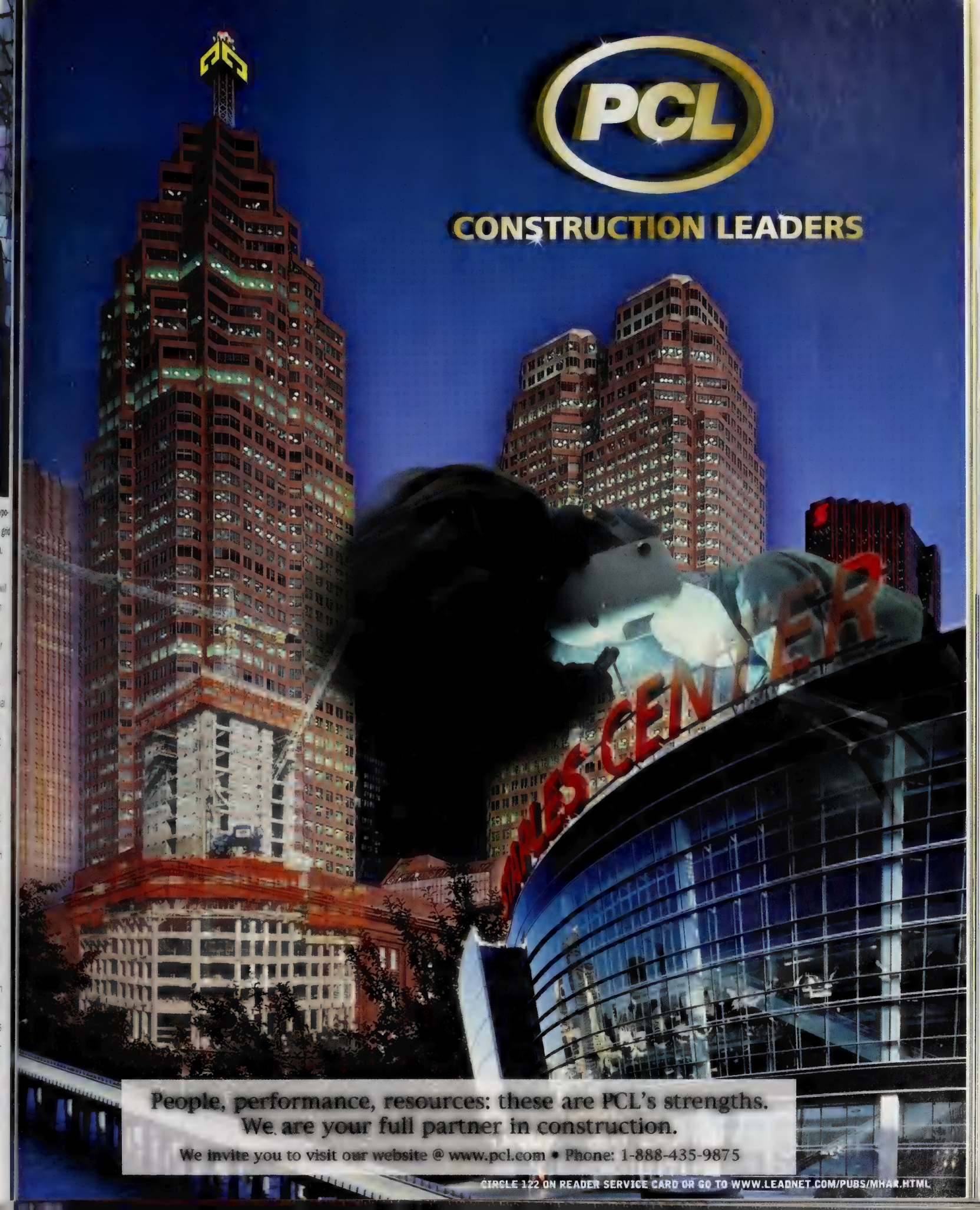
"ARCHITECTS HAVE THE CHANCE TO REINVENT DESIGN AND CONSTRUCTION PRACTICES," SAID KORALEVIC.

Toward a digital future

The projects were groundbreaking, but there's no denying a gulf exists between what these practitioners do and how most architects work. Few firms design high-budget iconic architecture, and many lack the resources to invest in or even investigate the latest tools. So what will it take for true digital-age design to enter the mainstream? What will help architects return to their master-builder roots?

The answers, in short, were numerous: overcoming adversarial relationships among designers, engineers, and contractors (what Glymph calls, at least in the U.S., "the Wild West atmosphere" of construction); a higher tolerance for risk; educational changes that emphasize the wise use of digital tools rather than mere facility with them. All agreed these changes will take decades.

Technology for architects is in its adolescence. It's difficult to envision how exactly it will transform aesthetics or architectural practice. But projects with roots in digital innovation offer reason to be enthusiastic or at least curious about its implications. The symposium was a call for action: architects must embrace technology's potential or run the risk of being marginalized by those who do. What sounds better to you? ■



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USG *Presents*

Selecting and Specifying Sustainable Walls, Ceilings and Substrates

by: *Richard C. Master, AIA, CSI*
Chair Emeritus, Specifications and Building Technology, Professional Interest Area (PIA), AIA
Manager, Architectural Systems
USG Corporation

ny way you look at it, sustainability has become a fundamental rinciple underlying successful building design. From a global standpoint, ustainability is imperative, as it offers a critically important means for conserving our dwindling natural resources. From an architectural business standpoint, it's becoming an increasingly important consideration, as a growing percentage of building owners and homeowners not only desire "green" buildings, but are now demanding them.

Green has, in fact, gone mainstream. Manufacturers are giving high priority to environmental concerns in their product development processes; builders and developers are acutely aware of how sustainability can impact project success; and retailers are proactively promoting green products.

Despite its growing acceptance, sustainable building design remains a complex undertaking. Because environmental issues can – and should – be considered in virtually every aspect of the design process, specifiers need to have a working knowledge of a wide range of green definitions, criteria, standards and applications.

This article will attempt to clarify some of the issues relative to green product selections and design specifications as they relate to walls, ceilings and substrates.

Green Product Selection

Green product selection is a key component of sustainable design. Green products can loosely be defined as those that reduce, recycle and renew – the three R's of sustainability. Specifically, sustainable products:

- Reduce the amount of raw materials needed for the manufacturing process. Lighter and/or smaller products generally require the use of less energy for transportation, storage and construction. Reduce can also refer to decreasing the amount of material used and/or wasted.
- Offer high recycled content and/or environmentally friendly reuses. The benefits here are obvious. Products with a high-recycled content may reduce raw material usage, energy consumption and landfill waste.
- Renew the environment by using materials that can be regenerated and/or materials offering environmentally friendly benefits.

The virtues of the reduce, recycle and renew principles must be balanced with an awareness of how embodied energy impacts sustainability. Embodied (or embedded) energy is the amount of non-renewable energy

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earning Objectives:

Understand the environmental benefits inherent in common wall, ceiling and substrate panels;

Recognize the impact that embodied energy has on green product selections;

Learn some general guidelines for creating green specifications.

required to extract, manufacture, transport and construct building products. It must be factored into all green product specifications, as it can have a significant – and sometimes surprising – impact on sustainable design.

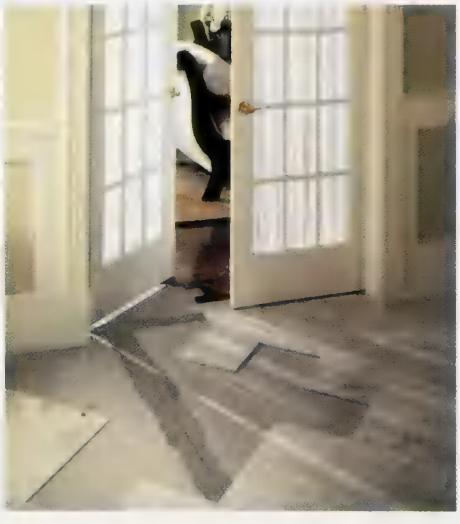
Generally speaking, products with low embodied energy are good sustainable design choices. However, this is not to say that products with high embodied energy are always poor sustainable choices. A high embodied energy product containing large amounts of thermal mass may provide significant savings in energy usage over the life cycle of a building. The initial high embodied energy in the product is more than compensated for by its ability to reduce a building's recurring long-term energy needs (e.g. heating and cooling).

One aspect of embodied energy that is sometimes overlooked is material transportation. Transportation requires the use of non-renewable fossil fuels, which under certain circumstances can negate the benefits of an otherwise excellent sustainable product selection.



Gypsum board scores extremely high on nearly all sustainable design criteria. It is made from an abundant and non-endangered mineral (gypsum) and has low embodied energy. Drywall made from recaptured gypsum reduces landfill waste resulting from fossil-fuel power plant generators.

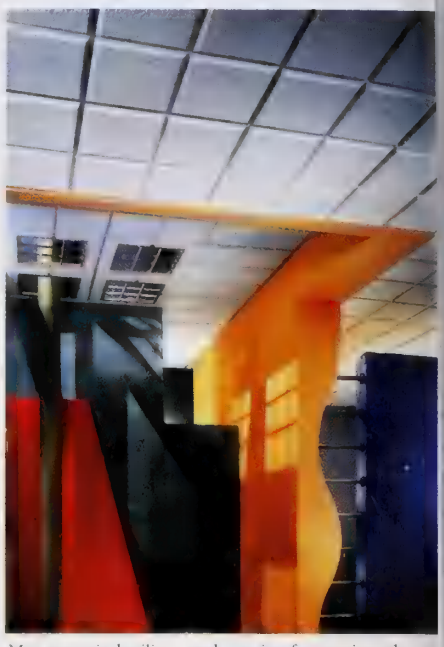
Consider the use of gypsum board. In certain areas of the country, the product is manufactured using recaptured gypsum formed as a by-product of operations in some power plants. The coal burned in many of these facilities produces undesirable pollutants, including sulfur dioxide. Wet limestone scrubbers are often used to prevent this pollution from entering the atmosphere. As the exhaust smoke from the power plant rises through the scrubber, its pollutants are chemically removed. The calcium and water in the wet limestone combine with the sulfur dioxide to create calcium sulfate, or recaptured gypsum. Gypsum manufacturers source this recaptured gypsum to produce wallboard, thereby reducing landfill waste. The wallboard made from recaptured gypsum is indistinguishable in terms of performance and quality from panels made from mined gypsum rock.



Environmentally friendly gypsum fiber panel floor underlayments (shown here) and exterior sheathings are made from 95 percent recycled materials, offering a sustainable alternative to wood-based products such as lauan.

Given these benefits, the use of recaptured gypsum in drywall would seem to be a win/win scenario. And in most cases, it is. However, when the embodied energy required to transport the panels over a longer distance is factored in, the green value of recaptured gypsum can be significantly diminished. When a recaptured gypsum panel is shipped more than about 200 miles by truck or 400 miles by rail, the environmental benefits of the recaptured content in the board are offset by the increased energy required for long-distance transportation. In other words, it doesn't make environmental sense to ship recaptured gypsum panels made in Alabama to a job site in California.

The same premise holds true with other recycled and renewable products, making transportation a key factor to be aware of when creating sustainable specifications.



Most acoustical ceiling panels consist of approximately 40 percent mineral wool, which is usually made from slag, a by-product of steel manufacturing. The use of slag eliminates the need to mine and process naturally occurring materials, while reducing landfill waste.

With that said, let's take a closer look at how gypsum board, acoustical ceiling panels, cement board panels and gypsum fiber panels rate in terms of the reduce, recycle and renew principles.

Gypsum Board Panels

Gypsum board scores extremely high on nearly all sustainable design criteria. Gypsum, the primary raw material used to make wallboard, forms naturally like salt or limestone, and is one of the most abundant minerals on the planet. It is neither rare nor endangered.

The bulk of the remaining materials in gypsum board consist of paper (recycled, from newspapers, phone books, old corrugated cartons and cardboard cuttings) and corn or wheat starch binders. The corn and wheat starch binders are renewable agricultural resources and are environmentally superior choices compared to using polymers derived from petroleum.

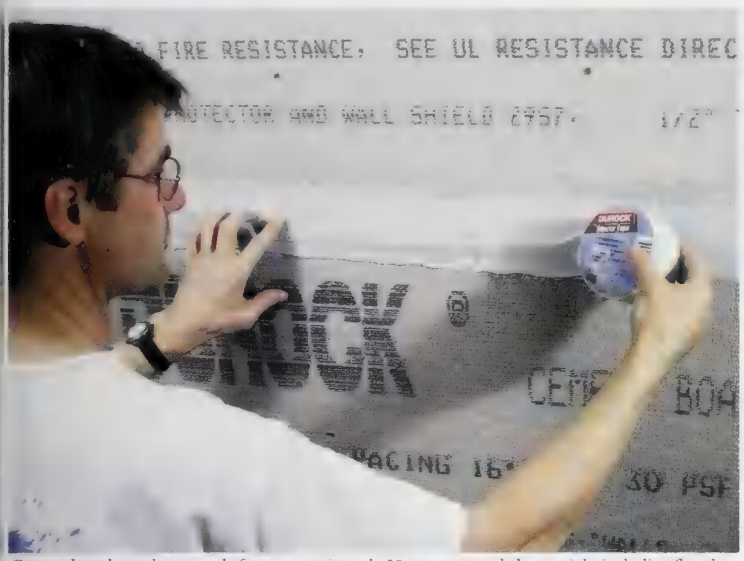
The embodied energy of gypsum board is extremely low. Drywall has less embodied energy than a wide variety of building products, including brickwork, concrete, particleboard, insulation, glass, vinyl flooring, plastics, steel and aluminum.

It is also important to note that manufacturing gypsum board is a low-waste production process. Approximately 95 percent of the raw materials entering a board plant leave as finished product. And most of the remaining 5 percent is recycled into small strips used to support stacks of finished gypsum panels. Overall, high-efficiency board plants can produce less than 1 percent material waste.

Manufacturers are now using hundreds of thousands of tons of recaptured gypsum to produce wallboard, reducing power plant landfill needs. Both mined and recaptured gypsum can also be reused to manufacture new gypsum panels. Other reuses include soil amendment (using gypsum as a high-calcium fertilizer or as a method for treating high soil pH), neutralizing the high pH levels caused by road salt applications, odor treatment and concrete set.

Acoustical Ceiling Panels

Some acoustical ceiling panels contain mostly mineral wool, gypsum and smaller amounts of paper and starch, as well as other miscellaneous materials. The recycled content in ceiling panels varies from approximately



Cement board panels are made from approximately 20 percent recycled materials, including fly ash, a by-product of power plant emission control processes.



To minimize construction waste, conduct a pre-construction meeting with contractors to discuss waste and disposal strategies and to explore alternative reuse options.

20 to 80 percent, depending on the product type, manufacturing process and plant location. The mineral wool used in the panels is usually made from slag, a by-product of steel manufacturing that consists of calcium silicate and other impurities. The slag is melted in coke-fired cupolas or electric melters and spun into fibers, which are incorporated into the ceiling panel production process. The use of slag reduces the need to mine naturally occurring materials such as basalt rock. It also decreases landfill waste. A high percentage of the paper used in the manufacturing process is recycled pre-consumer (cuttings from cardboard box manufacturing) and post-consumer (newspapers). The starches used as binders in the manufacturing process are renewable agricultural resources.

Like gypsum board manufacturing, acoustical ceiling production is a low-waste process. Panels that are chipped or broken during manufacturing are recycled and returned to the process.

The steel suspension systems used to support ceiling panels are considered green because they can be more easily reused than wood. The suspension systems can be 100 percent recycled by remelting and salvaging the metal.

It is also worth noting that some acoustical ceiling panels are available with a limited warranty against mold and mildew growth, which can help promote indoor air quality (IAQ).

Gypsum Fiber Panels

The gypsum fiber manufacturing process combines gypsum and cellulose paper fibers to create a variety of high-performance panels, including floor underlayments and exterior sheathings. Gypsum fiber underlayment and sheathing panels are both made from 95 percent recycled materials. Specifically, 85 percent of the content in these panels comes from recaptured gypsum and 10 percent is from post-consumer recycled paper fiber. The panels offer an excellent sustainable alternative to other wood-based panels, most notably lauan, which is harvested from endangered, old-growth forests.

Cement Board Panels

Cement board, a water-durable, multiuse panel commonly used as a backer for ceramic tile, is made from approximately 20 percent recycled materials, including fly ash. Fly ash is a waste stream material from power plant emission control processes that features cement-like properties. It is produced by electrical power companies in the combustion of coal and other solid fuels, and is subsequently purchased by cement board producers and used to manufacture the cement board panel core.

LEED: A SUSTAINABLE RATING SYSTEM

The U.S. Green Building Council (USGBC), a diverse coalition of principal groups involved in the building industry, was established in 1993. The council's mission is to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

Developed by the USGBC, the Leadership in Energy and Environmental Design (LEED) program created a building rating system to evaluate environmental performance from a "whole building" perspective, providing a standard for what constitutes a green building. Credits are earned for satisfying specific building criteria.

The LEED™ Rating System evaluates the environmental performance of a building, awarding points for:

- Sustainable sites
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality
- Innovation and design process

Within "Materials and Resources" for example, points are awarded for specifying a certain percentage of building materials that contain a specified percentage of post-industrial recycled content or post-consumer recycled content. Points are also awarded for specifying materials that are manufactured regionally within a certain radius.

The LEED™ Reference Package includes an extensive reference guide and rating system and is available to order at: www.usgbc.org or write: U.S. Green Building Council, 1015 18th St., N.W., Suite 805, Washington, D.C. 20036, or call (202) 828-7422.

Green Specifications

In order to maximize the sustainable value of these – and other – green building products, architects should incorporate sustainable design criteria into building specifications. Proper specification details ensure that the benefits inherent in green products are supported during the construction process and fully realized throughout the building's life cycle.

The first step in creating an effective green specification is to use a standard specification layout, such as MasterFormat™, from the Construction Specifications Institute. The MasterFormat divides specifications into three categories:

- **Part 1:** *General* –Describes general procedures and administration.
- **Part 2:** *Products*–Describes materials, products, equipment and systems.
- **Part 3:** *Execution*–Describes the proper procedures for the installation of specific products and systems into designed applications.

The three-section format provides architects with a structure to add detailed notes and full explanations of the environmental requirements expected for each project. There's no need to add additional sections, as this may only confuse contractors and building owners who are already familiar with the MasterFormat structure.

When creating environmental specifications, define your terms. Don't assume that users of the specification will know the exact meaning of recyclability, post-industrial materials or other environmental terms.

Consider including the following general criteria in your specifications as needed to meet the sustainable objectives of a specific project:

- Outline on-site product storage procedures. Given the fact that standing water is a common occurrence on many construction sites, materials should not be stacked on the ground and cartons should not be left unopened and exposed to weather.
- Detail appropriate methods for storing and discarding construction waste that cannot be eliminated. Conduct a pre-construction meeting with appropriate contractors to discuss methods for minimizing construction waste and disposal, and to explore alternative reuse options.
- Encourage the establishment of good construction practices. Realistic construction schedules will enable contractors to fully enclose buildings to minimize moisture penetration issues that may contribute to poor product and system performance.

Do *not* include descriptions of a project's environmental goals (e.g. attaining a LEED green building rating) in the specification. Rather, include this information as part of your instructions to bidders.

Last, but not least, remember the three R's discussed previously when selecting products to include in the specification. Choose products that reduce, recycle and/or reuse. Bear in mind though, effective green product selection requires a careful analysis of a wide range of factors. A product with high recycled content or other obvious environmental benefits is usually a solid choice for sustainable design. However, mitigating factors, such as the product's embodied energy or its impact on a building's life cycle energy usage, must be weighed in order to make the best sustainable choices.

In the end, well-researched green product selections, combined with intelligent sustainable specifications, offer architects a practical and effective solution for helping conserve our natural resources, while meeting a growing demand for environmentally friendly design and construction practices.

ADDITIONAL REQUIRED READING

As part of this CES activity, you are required to read the following additional materials:

"Drywall Recycling" provides more information on gypsum reuses. To access the material online, visit the California Integrated Waste Management Board Web site at http://www.ciwmb.ca.gov/ConDemo/factsheets/Drywall.htm. To request a faxed copy of the material, contact Marty Duffy at (312) 606-5781 or mduffy@usg.com.

• • •

"Environmentally Preferable Purchasing (EPP) Terms" on the Environmental Protection Agency Web site provides definitions for dozens of environmental terms. To access the material online, go to: http://www.epa.gov/opptintr/epp/eppterms.htm. To request a faxed copy of the material, contact Marty Duffy at (312) 606-5781 or mduffy@usg.com.

About USG

USG Corporation is a Fortune 500 company with subsidiaries that are market leaders in their key product groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling panels and grid; and building products distribution.

United States Gypsum Company, a subsidiary of USG Corporation, is the nation's leading manufacturer of gypsum board panels and the largest user of recaptured gypsum. The company uses more than 2.3 million tons of recaptured gypsum annually in the production of its SHEETROCK® Brand Gypsum Panels. Overall, the panels contain an average of 31 percent recycled content – 5 percent post-consumer waste and 26 percent post-industrial waste.

The company also manufactures FIBEROCK® Brand Sheathing with AQUA-TOUGH™ and FIBEROCK Brand Underlayment – AQUA-TOUGH, both of which are made from a gypsum fiber manufacturing process that utilizes 95 percent recycled materials. The panels offer an excellent sustainable alternative to wood-based panels, most notably lauan, which is harvested from endangered, old-growth forests.

USG Interiors, another subsidiary of USG Corporation, is the only manufacturer to offer a limited lifetime warranty against mold growth on acoustical ceiling panels. The warranty is offered on the company's ECLIPSE™ CLIMAPLUS™ and ASTRO™ CLIMAPLUS ceiling panels, both of which are treated with the proprietary AEGIS Microbe Shield™.

For further information about USG's environmental practices and products, write USG Corporation, P.O. Box 806278, Chicago, IL 60680-4124, call USG 's Customer Service Department at 800-USG-4YOU or visit the company's Web site at www.usg.com.

Learning Objectives

- Understand the environmental benefits inherent in common wall, ceiling and substrate panels;
- Recognize the impact that embodied energy has on green product selections;
- Learn some general guidelines for creating green specifications.

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 368. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. Which of the following factors will negatively impact the sustainable benefits of using gypsum panels made from recaptured gypsum?
A:
a. Installing the panels horizontally
b. Transporting the panels over long distances
c. Exposing the panels to moisture on the job site
d. Kiln drying the panels during manufacturing

Q: 2. Products with low embodied energy:
A:
a. May negatively impact indoor air quality
b. Are usually of lower quality than high-embodied energy products
c. Will not promote the growth of mold or mildew
d. Save on non-renewable energy required for manufacturing and transportation

Q: 3. Which of the following is not a recognized aspect in the LEED Rating System?
A:
a. Products that contain post-industrial or post-consumer recycled content
b. Products that are manufactured regionally
c. Products with high fire ratings
d. Indoor environmental air quality

Q: 4. Which of the following is not a possible reuse for gypsum panels?
A:
a: Drywall manufacturing
b. Soil amendment
c. Road salt treatment
d. Slag

Q: 5. A key benefit of green building products that reduce is:
A:
a: They lower a building's life-cycle energy usage
b. They require fewer raw materials to produce
c. They minimize the growth of mold and mildew
d. They are less costly

Q: 6. Which of the following is not considered part of the green specification process::
A:
a: Choosing products that minimize construction waste.
b. Considering material transportation and embodied energy issues.
c. Encouraging proper material storage on the job site
d. Recommending fastest-possible construction schedules

Q: 7. Match the environmental term with its correct definition:
A:
a. Biodegradable
b. Compostable
c. Disassembly potential
d. Energy consumption
1. Capability of organic material to biologically decompose into humus-like material
2. The total amount of energy consumed for product or service manufacture, use, and disposal.
3. Capable of decomposing under natural conditions.
4. The ease with which a product can be disassembled for maintenance, replacement, or recycling.

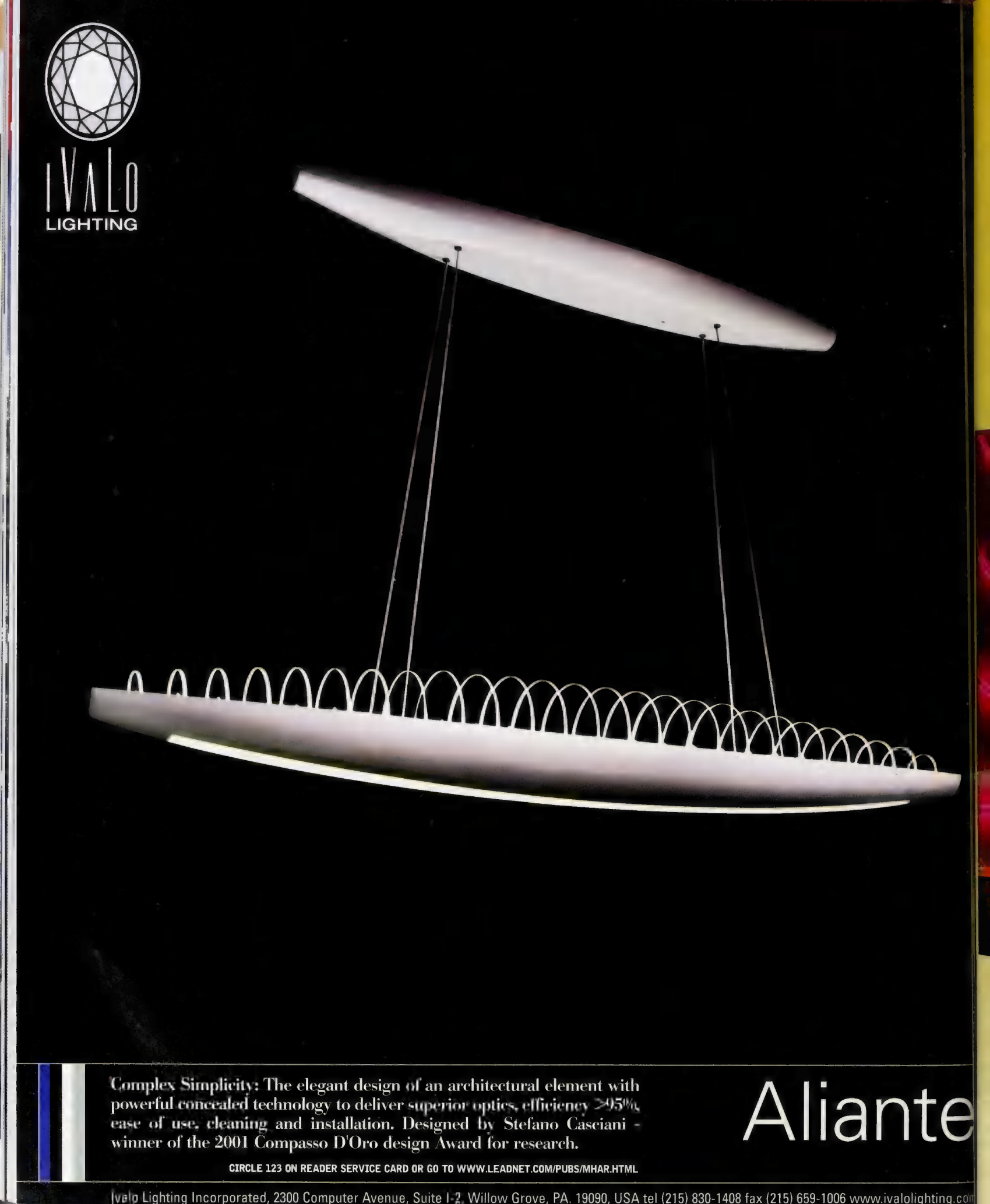
Q: 8. Match the environmental term with its correct definition:
A:
a. Extended product responsibility
b. Life cycle assessment
c. Reactivity
d. Reconditioned
1. The tendency of a solid waste to exhibit harmful characteristics when in contact with other substances
2. Refers to the process of restoring used, durable products to meet original performance standards, resulting in less waste and raw material and energy use
3. The examination of a product's environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use and disposal.
4. A product systems approach to environmental protection that considers product chain and life cycle environmental impacts

Q: 9. Ways to reduce drywall waste can include all but which of the following:
A:
a. Constructing standard-sized walls and flat ceilings
b. Reducing the embodied energy of material transportation
c. Ordering custom-sized sheets for nonstandard walls
d. Finding substitutes that are reusable, such as modular "demountable partitions" for commercial buildings

Q: 10. Most drywall waste is generated by which:
A:
a. Manufacturing
b. Demolition
c. New Construction
d. Renovation

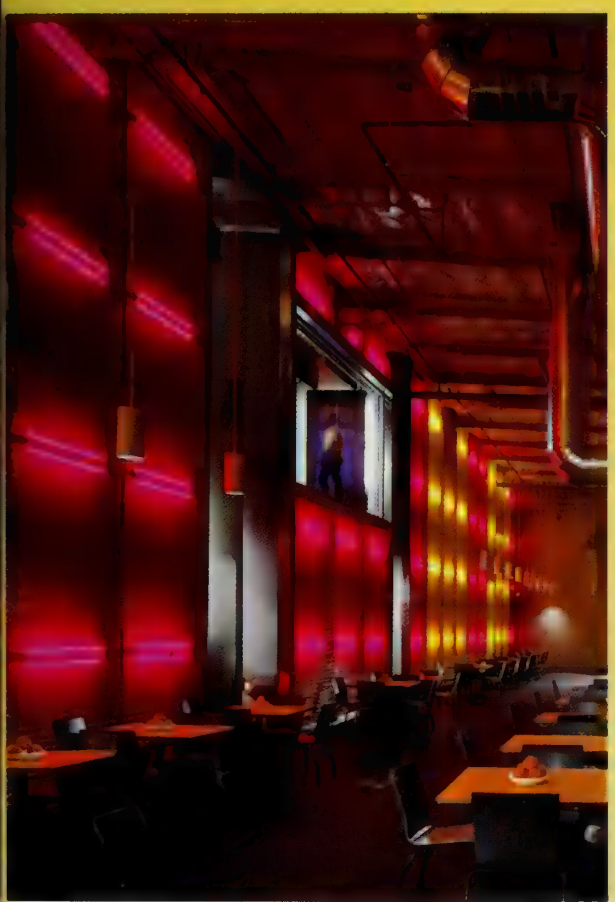
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LIGHTING

The alchemy of standard fluorescents and architectural materials



Lighting has evolved faster than many building technologies. Red light-emitting diodes, for example, are 100 to 1,000 times brighter than they were when invented in 1960. This and other astonishing developments might tempt one to consider designers who employ workhorses such as linear fluorescents stuck in the land of retro. But the ability of a design team to manipulate the mundane into something remarkable remains a good measure of imaginative—and often cost-effective—architectural lighting. Interacting with new generations of building materials, standard lamping can be the catalyst for an alchemy of form, volume, and light.

At the new MoMA Design Store, lighting designer Bill Schwinghammer collaborated with the firm 1100 Architect on a luminous architectural envelope to house high-style museum merchandise. A skinlike membrane of polyvinyl material along the ceiling and side wall is backlit with linear fluorescents. Schwinghammer found through mock-ups that the framed scrim surface, though not widely used as a diffuser for lighting, reduced the color temperature of the lamps from 3,500 degrees to 3,000 degrees Kelvin; this cast the warmer light he envisioned. Lighting integrated with the enclosure also eliminated the need for applied accent illumination throughout the main retail level.

The RealNames Corporation (left) features color-filtered fluorescents behind translucent walls for ambience writ large in a dot-com workplace. Vertical planes enlivened with bright hues and low-level illumination complement a landscape of computer screens awash with Web animation.

We are pleased to announce that archrecord.com users soon will be able to locate virtually any lighting manufacturer by clicking the Lightsearch button in the lighting area of our Web site. Produced by inter.Light, Inc., Lightsearch is a comprehensive search tool that allows one-click access to the Web pages, company profiles, and e-mail addresses of more than 7,000 lighting companies, including over 4,000 manufacturers. Whether scouting for a standard lamp or a new-technology standout, you will find it a helpful resource. *William Weathersby, Jr.*

301 Creative uses

306 Rain
II By IV Design Associates

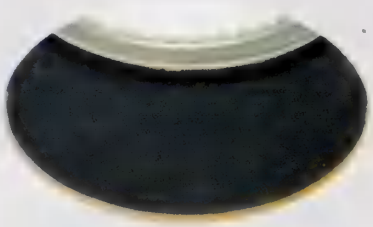
315 RealNames Corporation
Blauel Architects; Bottom Duvivier

320 MoMA Design Store
Johnson Schwinghammer

325 The Foundry Lobby
Tillett Lighting Design

331 Technology: compact, indirect luminaires

333 Lighting resources



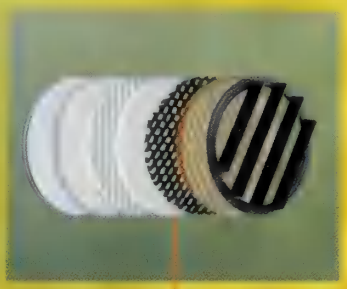
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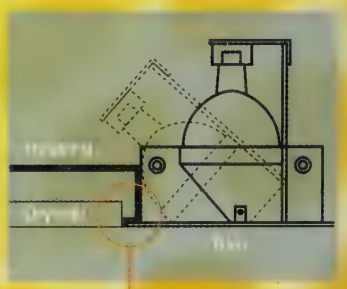




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*patent pending

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Creative Uses

A California college puts free-form light boxes in a lounge • Yale's art gallery sees the light • Orlando's entertainment ethos brings neon-edged fins to a public building

A slash of overhead lighting shapes a student lounge at the California Institute of the Arts

Home to a student body of budding artists, filmmakers, and performers, the California Institute of the Arts (CalArts) in Valencia, California, is a college that encourages creative experimentation. School administrators recently decided that student amenities at the 30-year-old campus required a more progressive outlook. Griffin Enright Architects, working with architect Elyse Grinstein, was commissioned to turn an underused lounge in the classroom building into a lively, multiuse space.



The lounge's reflected ceiling plan.

Filled with dilapidated, leftover furniture and bereft of architectural details, the existing 1,590-square-foot space was like "a crash pad out of *Wayne's World*," says principal architect Margaret Griffin, AIA. "Our goal was to create an attractive, flexible environment where art students and faculty could interact between classes or at special events like screenings or exhibitions."

The program called for accommodating a lounge, coffee bar/café, bookstore, and exhibition space within the ground-floor corner of a three-story, concrete-waffle-slab building constructed in the late 1960s. The lounge was to remain open around the clock, even when the café and bookstore were closed.

To link the various functions without sacrificing a sense of openness, the design team inserted a furniturelike collage of simple materials and dynamic form. The main programmatic elements are intertwined laterally across the plan. A diagonal circulation path through the space connects an interior corridor of the building with the exterior terrace and dormitories beyond.

Working within a budget of $40 per square foot, the architects employed a palette of durable, stock materials. Folded panels of plywood and polycarbonate plastic are expressed as benches, counters, art exhibition walls, and sheathing for an overhead light box.

Although a maximum ceiling height of only 10 feet was allowed because of an existing HVAC plenum, the architects "wanted to engage the ceiling as a strong design element," Griffin says. "Designing a sculptural light box that slashed overhead became a way to help blur the boundaries of the program and to underscore the concept of planes folding and unfolding through the space."

Supported by a steel frame—and braced to meet earthquake-resistant codes—the polycarbonate-panel-clad structure stretches across the student center like an oversize Origami. Folding down at points to meld into wall panels of the same material, the free-form lighting unit breaks the mold of drop-ceiling illumination. Fitted with T8 linear fluorescents and stretching 47 feet at its longest point, the light box provides ambient and task lighting for multiple functions.



The counter and light box extend beyond the facade to engage the terrace.

To strengthen the link between the center and the campus, the light box, counter, and bench project through the facade to engage the terrace. The light box is a beacon while also supporting events that flow outdoors. *William Weathersby, Jr.*



The diagonally placed light boxes are visual cues drawing patrons through the lounge, while illuminating varied tasks.

PHOTOGRAPHY: © TOM BONNER, DIGITAL ILLUSIONS MORRISON & HECKING

New daylighting enhances a collection at the Yale University Art Gallery





Painted over in the 1970s, the main gallery's laylight has been fitted with new laminated glass and a UV-absorbing interlayer (left). A furniture exhibition is lit by PAR30 and MR16 track fixtures (below).

Ensconced for nearly 30 years in a black-box space, the prestigious American Collection at the Yale University Art Gallery was long overdue for an updated setting. Considered avant-garde when designed by Chermayeff & Geismar in the early 1970s, the gallery space on the New Haven, Connecticut, campus relied on the dramatic contrast of stark accent lighting within a blacked-out surround, achieved by painting out the original laylights of Egerton Swartwout's 1928 Gothic Revival building.

The museum recently decided to reintroduce daylight into the main gallery space, which would also showcase the architectural grandeur of the historic building. In the course of a renovation by exhibition designer Stephen Saitas and the lighting design firm Hefferan Partnership, the installation of the collection was reconfigured to bring paintings into the large central gallery, with furniture and decorative objects relocated to smaller adjacent galleries.

Introducing the right amount of daylight into the painting gallery was a delicate and complex procedure, says principal lighting designer Steven Hefferan. "We produced extensive computer modeling and full-scale mock-ups to develop a new daylighting solution."

Daylight was engineered as the main source of illumination, with electric-lighting systems used only as augmentation. The original laylight was replaced with laminated glass and a UV-absorbing interlayer. A 7 percent transmittance scrim was stretched above the laylight.

The temporal qualities of daylight are allowed to fluctuate daily and seasonally, so that the viewer gets a sense of time and season when within the space. To protect the artwork, lighting levels are kept within the museum's annual illuminance-exposure criteria.

A photocell-activated wall wash of 5 foot-candles reaches full intensity when daylight falls below the required threshold. A two-circuit track provides a 7-foot-candle highlight on the picture plane. PAR30 and MR16 fixtures with spread lenses create a layering of low-glare accent and wall-wash effects.

The smaller galleries, which house light-sensitive decorative arts and special exhibitions, feature no daylight and much lower levels of electric illumination. Adjustable ceiling-mounted tracks with PAR30s provide wash light, and MR16s highlight large objects. Display cases combine dimmed fluorescent ambient fill light and MR16 accent lights on displayed items. Transition areas assist visual adaptation as patrons enter nondaylit galleries.

The relighting was part of an interim renovation that is projected to last five to 10 years. Polshek Partnership has developed a master plan to renovate Yale's art complex. *Nayana Currimbhoy*



Nighttime neon (above) outlines glass fins fronting the library (right).

An illuminated sculpture invites interaction with Orlando's library



Trained as an architect and jazz musician, Christopher Janney pursues art to reconcile his dual passions: making music more physical and buildings more dynamic. He accomplishes both goals in "Light Waves," a site-specific work supported by the Orlando Public Arts Commission to enhance the city's main library.

Arguably anathema to architectural purists but considered a welcome public enhancement in the themed-entertainment capital of Orlando, Janney's installation provides a counterpoint to the library's Brutalist facade designed by John Johansen. An interactive component grants pedestrians a connection to the building, "allowing a sense of ownership of the public place and surrounding urban environment," Janney says.

Four 38-foot-tall, transparent fins rise along the western elevation. Composed of flat colored glass with wavy edges, the fins rise 11 feet from ground level to the roofline.

During the day, the glass is like a kinetic painting that changes depending on variegations in sunlight, clouds, and weather. At night, neon and interactive musical elements allow passersby to compose with light and sound.

Light boxes, each housing 9-foot-by-6-inch lengths of white neon, originate at the bases of the glass forms, highlighting the hard concrete edges of the facade's cladding.

A panel beneath each fin is silk-screened with the pattern of a human hand in the color of the corresponding glass. When touched, sensors trigger changes within the lighting pattern accompanied by a musical and environmental-sound score composed by Janney. A riddle etched in a plaque near the installation is a further enticement: Anyone who correctly deciphers the message and presses the appropriate sequence of sensors is rewarded with a dance of light. *Leanne B. French*



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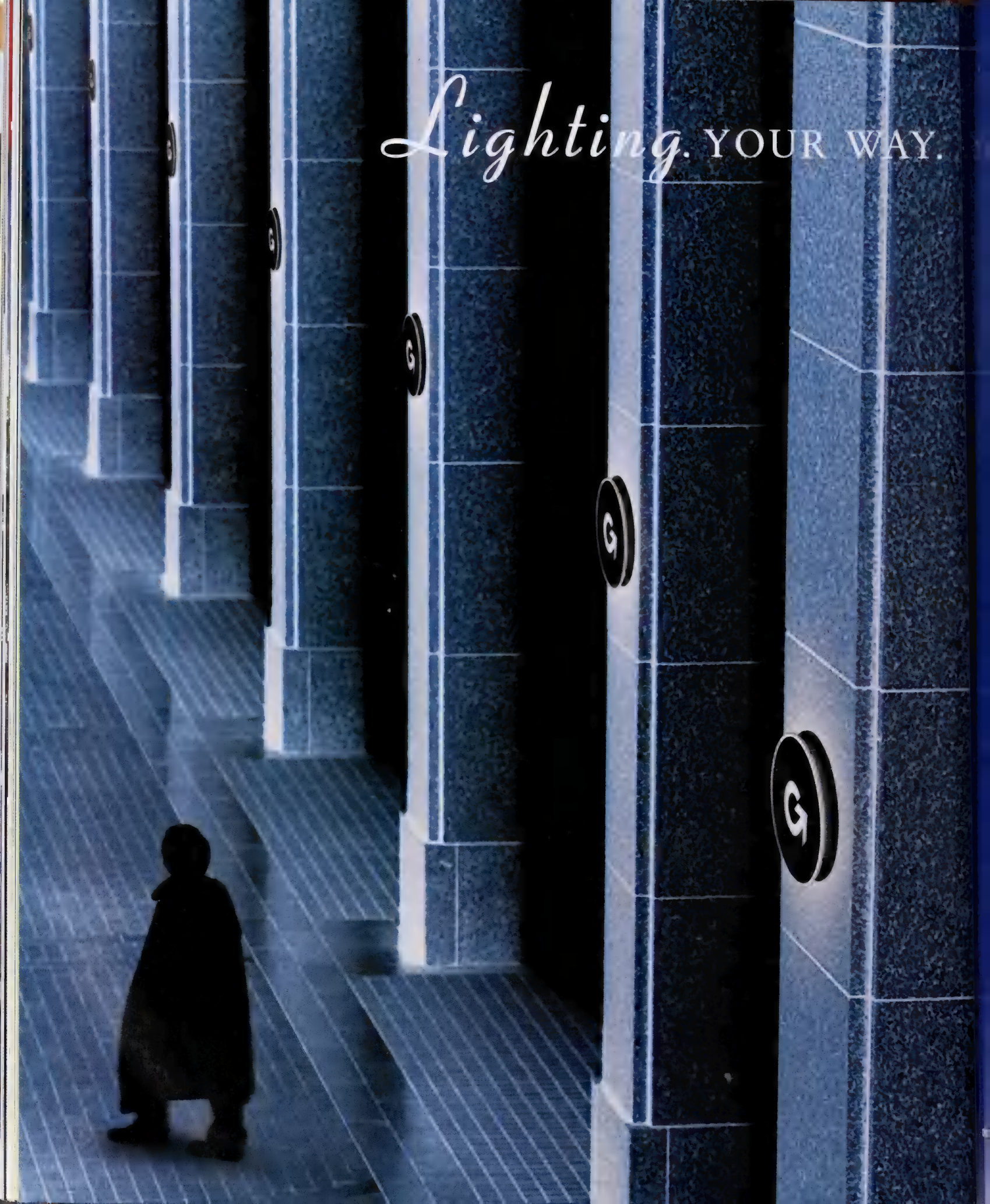
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Glowing white cubes and rectangles set near cascading water are a recurring motif. The bar is internally lit with fluorescents (right and below). A waterfall behind the backbar's glass wall is lit with MR16 spots. In the lounge (opposite, top), a mod fixture orbits above a feather pouf covered in clear vinyl.





Dappled with light, the glossy planes of Rain frame an evocative setting for Toronto nightlife

By Nayana Currimbhoy

"Mist rolling over a lake on a wet morning. That was our inspiration for Rain," says Keith Rushbrook, principal of II BY IV Design Associates. In the new nightspot near Toronto's theater district, such sensual imagery takes the form of glowing glass cubes, pools of light reflected on glistening surfaces, and spotlit waterfalls cascading over walls of pebble and glass. Shadowy, light-dappled spaces—as evocative of rainy nights as misty mornings—are a dramatic backdrop drawing patrons to this popular, Asian-influenced restaurant and lounge.





Rain was the second commission for Rushbrook and design partner Dan Menchions from clients Michael and Guy Rubino, following the four-year-old restaurant Zoom. Located on the ground floor of a historic building that was once a women's prison and now houses offices and shops, Rain juxtaposes textural materials with sleek modern furnishings. Bamboo, slate, pebbles, and sandblasted-glass surfaces surround vinyl-upholstered banquettes and chrome-legged tables and bar stools. A cosmopolitan lounge that takes its cuisine seriously, Rain showcases a dim sum–style menu served from an open kitchen.

Designing both the interiors and the lighting plan, II BY IV employed illumination as an an atmospheric catalyst. Prominent custom-furniture pieces glow from within, while inventive chandeliers become sculptural focal points. "Lighting promotes a mood," says Rushbrook. "The uplighting is flattering and the mistiness sets a tone."

The designers kept the industrial feeling of the 2,400-square-foot space intact. Within the building envelope—encompassing a concrete floor and ceiling, white-painted brick walls, and exposed ducts—a somber palette of blue, gray, and green is suffused with reflected and refracted light.

Entering through frosted-glass doors on which *Rain* is etched in fluid lettering, patrons arrive within a dusky vestibule showcasing a luminous composition. A sandblasted-glass reception desk, internally illuminated with dimmed fluorescents, sits in front of a 50-foot-long wall of pebbles embedded in mortar that is lacquered to a slick, wet shine. Over its surface, two full-height waterfalls cascade onto narrow beds of river rock inset into the sealed concrete floor. Narrow-beam MR16 fixtures spotlight the trickling water. The tableau is a backdrop for two eccentric, 10-foot-diameter chandeliers: Squat, 40-watt clear bulbs are suspended individually at varied heights, "like a rim of raindrops falling

Nayana Currimbhoy is a writer based in New York City. She is a frequent contributor to RECORD *Lighting.*

Project: *Rain, Toronto*
Owners: *Michael and Guy Rubino*
Interior and lighting designer: *II BY IV Design Associates—Keith Rushbrook, Dan Menchions, principal designers; Jenny Lee, designer*
Mechanical and electrical engineer: *ESTI Consultants*
General contractor: *ICI Construction*

Chandeliers designed by Achille Castiglioni reign in the main dining room. Narrow-beam halogens graze a white-painted brick wall to evoke light rippling on water (below).



into a pond," says Rushbrook.

To the right of the reception area, a cocktail lounge is dominated by an oversize pouf stuffed with feathers and upholstered in shiny transparent vinyl. A curving canopy of PVC material stretched across a metal frame brings the 24-foot-high ceiling down to an intimate level, while serving as a reflective backdrop for a sculptural chandelier designed by Italian industrial design star Achille Castiglioni.

In the main dining room set with rows of tables, two additional stretched canopies, pierced by cluster-orb chandeliers, mirror the lounge area with its tentlike ambience. White-painted brick walls on either side of the room are washed by narrow-beam MR16 uplights, evoking pools of light cast over water.

Luminous furniture is a design device carried through in the main bar area, where a U-shaped, translucent glass bar is illuminated from within by 2-foot dimmable fluorescents. "Gimlet" stools designed by Jorge Pensi pull up to the bar. Behind the backbar's glass wall, another waterfall is highlighted by ceiling-mounted MR16 spots. The lighting creates the illusion of water trickling down the bottle-lined shelves.

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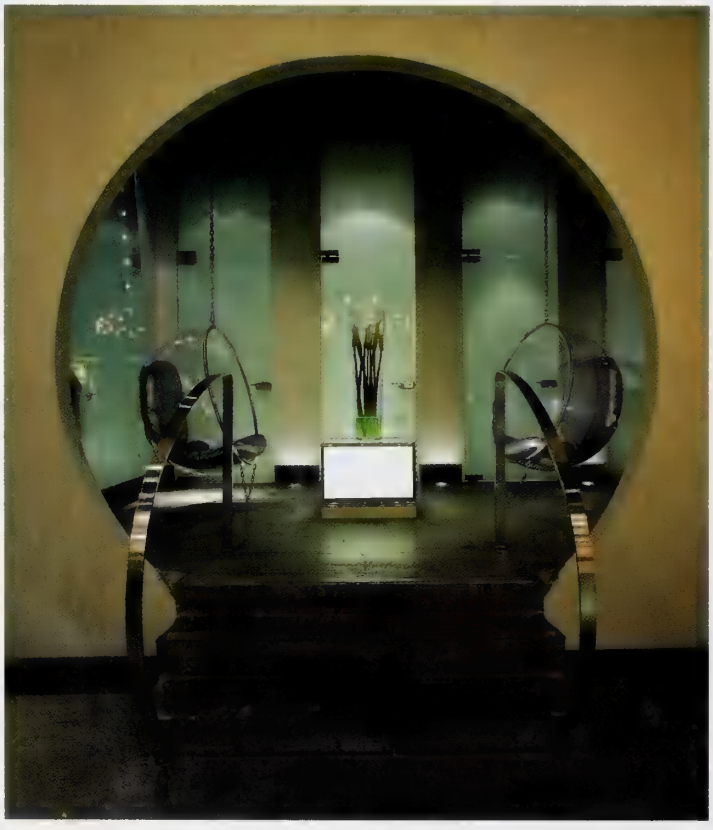
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In the reception area (right), two "chandeliers" are composed of clear bulbs suspended in circles at alternating heights to suggest raindrops. Steps lead to a row of five unisex washrooms (below), whose frosted-glass doors feature integrated contact light switches. Reproductions of Eero Aarnio's 1960s Bubble Chair flank a glowing cube in the anteroom.





Framed by circular portals, a platform level three steps up from the bar is divided between the open kitchen to one side and a row of unisex washroom cubicles. The cubicles are equipped with floor-recessed waterproof halogen fixtures that are activated when the frosted-glass doors are shut. Viewed from the nearby anteroom, the glowing doors add another layer of changing light. Suspended nearby, two Plexiglas

THE METAPHOR OF WATER DROPLETS IS INTERPRETED BY LIGHT FIXTURES, FROM PENDANTS TO SUSPENDED BULBS.

chairs—reproductions of Eero Aarnio's 1960s Bubble Chairs—flank another of Rain's signature illuminated cocktail cubes.

Throughout the restaurant and lounge, divisions between rooms seem figurative rather than literal, an illusion created by the marriage of lighting and tactile screens. A grove of tall bamboo reeds, anchored in troughs and highlighted by halogen track fixtures, separates the main dining room from a long communal table in an adjoining space. Elsewhere, frosted-glass partitions, framed in stainless steel and illuminated by recessed halogens, function as theatrical scrims. Fluid and slightly mysterious, the lighting is right as Rain. ■

Sources
Chandeliers: *Flos*
Surface-mounted MR16 fixtures, suspended single lamps: *Eureka*
Bar and table cubes, recessed and track MR16 fixtures: *Eurolite*
Recessed floor lights: *Martini*
Fireplace lighting effect: *Belfer*
Additional lighting: *Litemor*

WWW For more information on the people and products involved in this project, go to Lighting at **architecturalrecord.com**.



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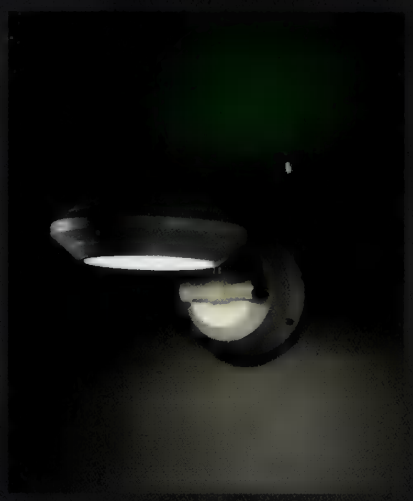
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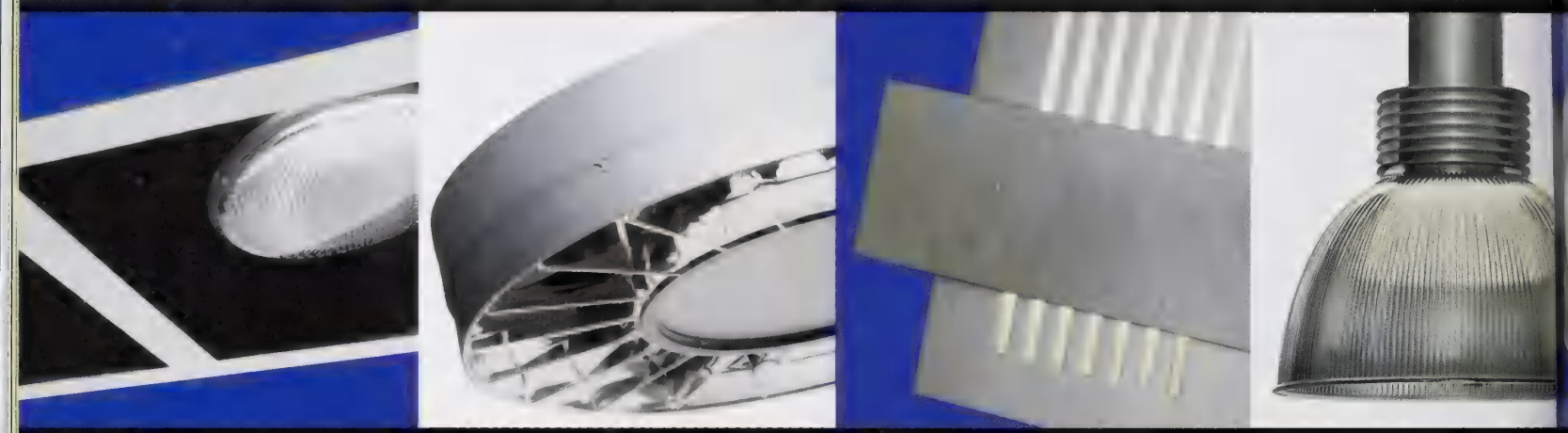
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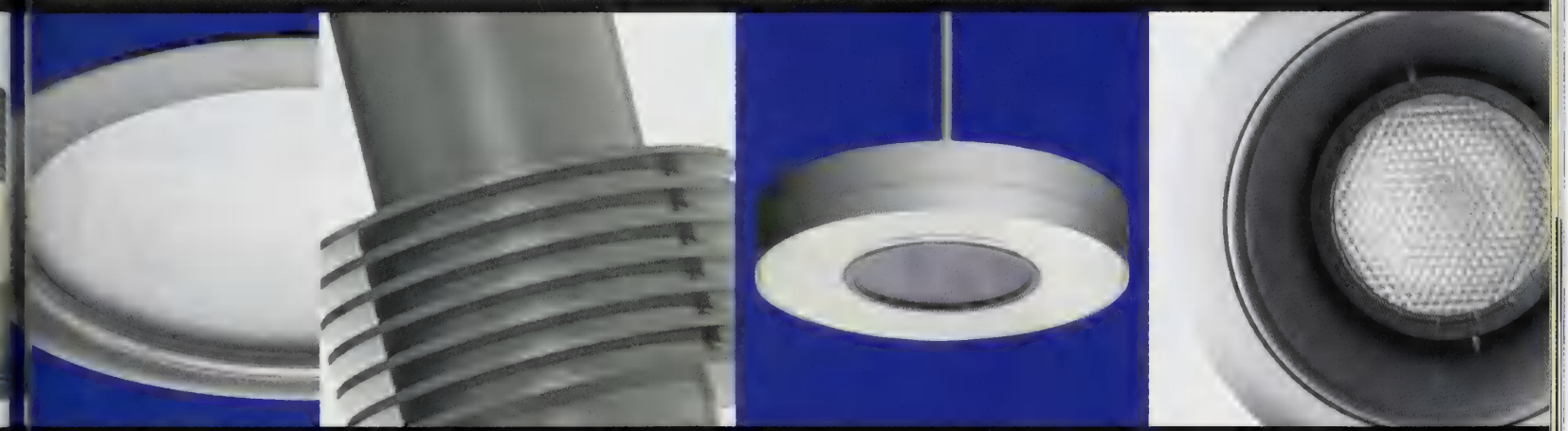
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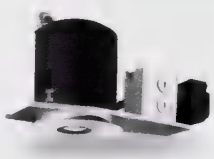
Lumiere



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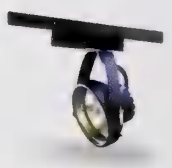
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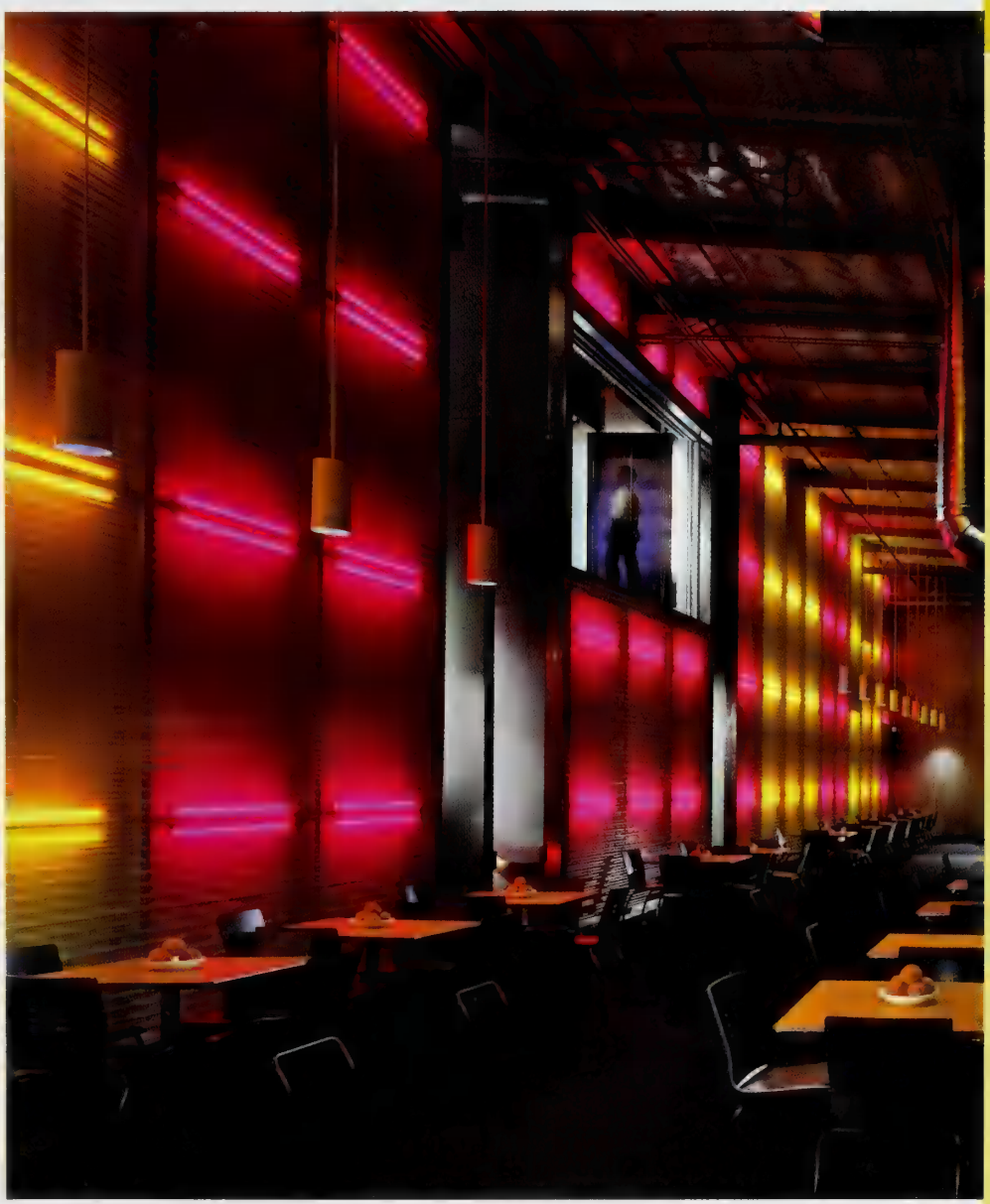
A building core wrapped with tinted fluorescents creates a vibrant open-plan workspace in California

By Leanne B. French

Many dot-coms may have come and gone, but the Internet revolution has left its mark on the U.S. workplace. The Redwood City, California, headquarters of RealNames Corporation, a provider of Internet keyword navigation, is an example of a worker-friendly office born of e-business. For its 53,000-square-foot Silicon Valley facility, a tilt-up building in a business park, the company wanted to encourage communication and creativity within an open-plan office defined by clean lines and durable furnishings and materials. To help recruit and retain talented personnel comprising mostly twentysomethings, the client sought an office that put the "fun" in functional. Once past the reception area, colorful ambient lighting wraps the walls of a central core of enclosed rooms, forming a vibrant backdrop to animate the surrounding open space.

California architects Bottom Duvivier designed the interior spaces and lighting with Blauel Architects, which developed the initial illumination concept. Blauel, a London-based firm that had previously designed offices for RealNames, brought an awareness of the firm's open-air philosophy to the project. Bottom Duvivier contributed an intimate knowledge of the site, having previously converted the same building for two computer-industry tenants.

"This building has led different lives, with various configurations supporting specific functions," says design principal Lisa Bottom. "At one time it housed a medical-equipment-repair company, with a warehouse and loading dock where you could drive trucks in and out of the main space. For RealNames, we mapped out a perimeter



The RealNames Corporation café has a 130-foot-long wall of polycarbonate panels backlit with linear fluorescents fitted with color filters. Additional compact fluorescent downlights focus on tabletops. "The light box was an economical way to animate the double-height room," Lisa Bottom says.

Leanne B. French is a writer based in New York City. She regularly writes about lighting, architecture, and entertainment design.

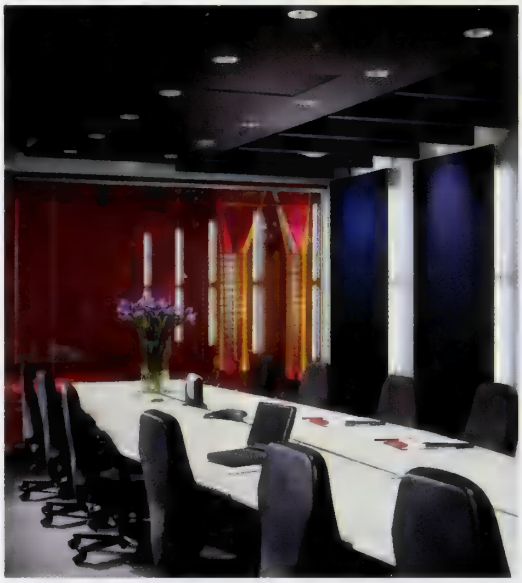
Project: *RealNames Corporation, Redwood City, Calif.*
Architect, interior designer: *Bottom Duvivier—Lisa Bottom, principal; Robert Hayes, Davis Larsen, Dimple Mittal, project team*
Consulting architect, concept lighting designer: *Bernhard Blauel Architects—Bernhard Blauel, principal; Peter Jurschitzka, Andy Nettleton, Angelika Zwingel, Robert Zeller, project team*
Electrical engineer: *Palmer Electric—Brian Iwashita*
General contractor: *DPR Construction*



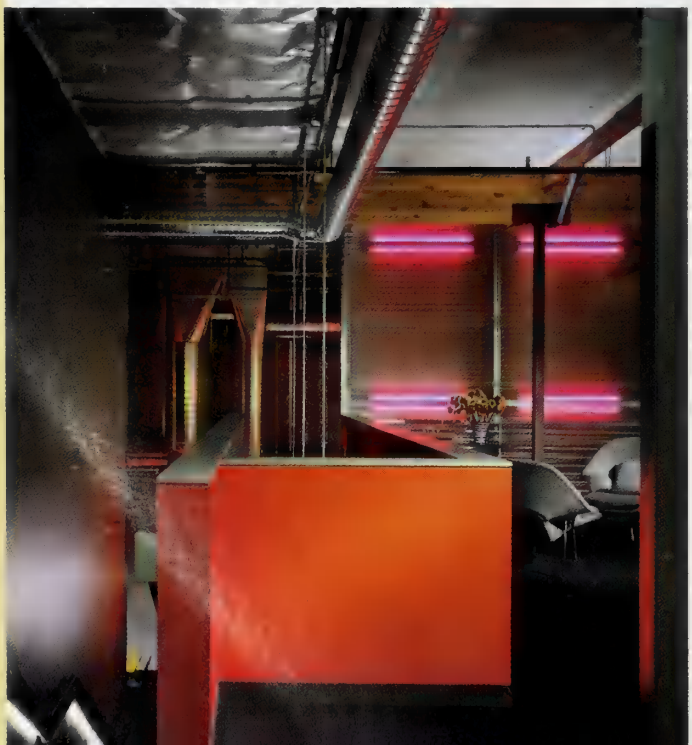


A mezzanine-level boardroom overlooks the café (opposite). The stairway is illuminated by strip lights. In the double-height, open-plan office (this page), the color wall provides an ambient glow, while baffled T8 fluorescent pendants serve as task lighting.





A single-height, open-plan office area has views into a breakout room (above). The boardroom backlights acoustical panels with vertical fluorescents (right). A waiting area displays a hint of the illuminated wall as a visual cue (below).



of open-plan workstations circling a two-story core of conference spaces and secured computer-server rooms." The open plan on two floors accommodates 285 workstations set in long rows angled out from the perimeter. A sector of the main floor with 9-foot ceiling heights opens onto an area with 18-foot-high ceilings. The ceiling structure and suspended mechanical equipment are left exposed.

Lighting wraps the 18-foot-tall walls of the core tower, becoming the visual focal point of both the open-plan areas and an adjacent employee café. Wall panels composed of corrugated polycarbonate are backlit with 4-foot-long, 38-watt linear fluorescent fixtures fitted with colored filters. Instead of an even wash, the glowing fluorescents are visible behind the translucent panels, which is both a function of the conservative budget and the kit-of-parts aesthetic of the office.

"The lighting placement within the light-box walls evolved as we met with the code authorities, the general contractor, and the client, who was concerned about maintenance," says Bottom Duvivier project manager Robert Hayes. Fixture replacement was simplified by installing easy-to-open panels over the linear fluorescents. Warm yellow and red hues backlighting the walls pick up the colors of work surfaces and café tabletops, contrasting with the muted gray and black furnishings and carpet. While the backlit walls provide a vivid backdrop for work and dining areas, the lighting also compensates for a lack of daylighting and views in the cavernous space. In the

FLUORESCENT LIGHTING IN THE BOARDROOM IS INTEGRATED WITH ACOUSTICAL WALL PANELS.

lobby and café, custom compact fluorescent cylindrical pendants complement the colorful walls and provide additional ambient light.

Pendant T8 fluorescent fixtures, with indirect uplight and downlight components, are suspended over the rows of workstations. With most employees focused on their computer screens, additional desktop task lights are kept to a minimum.

Conference and breakout rooms on the main and mezzanine levels supplement the open plan for private meetings. "Although the open-plan office supports a feeling of teamwork—the C.E.O. does not have a private office—we needed to provide areas for people to duck into for private or lengthy meetings," Bottom says.

On the mezzanine level, the boardroom overlooking the café features lighting integrated into an acoustical shell designed in collaboration with consultant Charles Salter Associates. Fabric-covered acoustical wall panels, with linear fluorescents mounted vertically at their edges, make a visual statement and control noise. As additional baffling, fabric-covered acoustical panels cover the ceiling, with compact fluorescent downlights illuminating the conference table. Remote-controlled light settings support videoconferencing and audiovisual presentations. ■

Sources

Side-mounted fluorescents with color sleeves: *Columbia*
Custom compact fluorescent pendants: *Prescolite*
Indirect fluorescents: *Finellite*
Low-voltage fixtures, recessed compact fluorescents: *Prescolite*
Custom lighting controls: *Palmer Electric*
Boardroom lighting control: *Lutron*

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Cast-iron columns are encased in sand-blasted glass and lit with fiber optics, while fluorescents backlight a white membrane ceiling for a sleek canopy.

A second satellite store for MoMA in Manhattan places iconic design objects in a landscape of light

By William Weathersby, Jr.



Within a historic cast-iron building in SoHo, the even light attracts passersby.

See the art show, buy the poster. The Museum of Modern Art has long influenced public perceptions of what is considered good art and design, its imprimatur a name-brand seal of approval. As the commercial extension of its revered galleries, the MoMA Design Store is a "franchise" presenting both aesthetic philosophy and consumer goods. It is also a crucial source of income for the institution's balance sheet. Following its first satellite store, on 53rd Street near the museum (now shuttered during a three-year renovation), MoMA recently headed downtown to open another retail outpost in Soho. Twice the size of its uptown counterpart, the 10,000-square-foot store occupies two floors of a landmark cast-iron building at the corner of Spring and Crosby Streets.

Creating a versatile, contemporary retail environment within the historic context of the storefront space was the mandate given to the firm 1100 Architect. The challenge was to maintain some structural elements—timber, cast iron, and masonry—while inserting a new infrastructure to reflect MoMA's Modernist spirit and to serve quick-change retail requirements. With an inventory of design objects, furniture, and printed images that are reproductions of cultural icons, the store was planned as a complementary backdrop that wouldn't compete for attention. The solution was architectural framework as luminous landscape, with lighting the catalyst allowing the merchandise to shine.

"It was important for us to design a space that would, in a sense, extend out from the store itself," says principal architect Juergen Riehm. "Even from the street, the glow of the interior sets it apart and draws the attention of passersby."

"The store functions as luminous light box," says principal lighting designer Bill Schwinghammer of Johnson Schwinghammer, who previously consulted with 1100 Architect on the design of the midtown MoMa Design Store. For lighting that melds with the architectural envelope, rather than functioning as applied accent illumination, the design team engineered a luminous wall and ceiling treatment punctuated by glowing glass-sheathed columns. A skinlike polyvinyl membrane fabric is stretched across multiple panels along the ceiling, down one wall of the main floor level, and down the same wall of the cellar level in a continuous, unbroken curve. Backlit by fluorescents, the surface creates a bright, shadow-free interior to frame the distinct shapes and colors of merchandise on display. "With ceiling heights of almost 20 feet, the ceiling plane is monolithic but dynamic enough to light the space," Schwinghammer says.

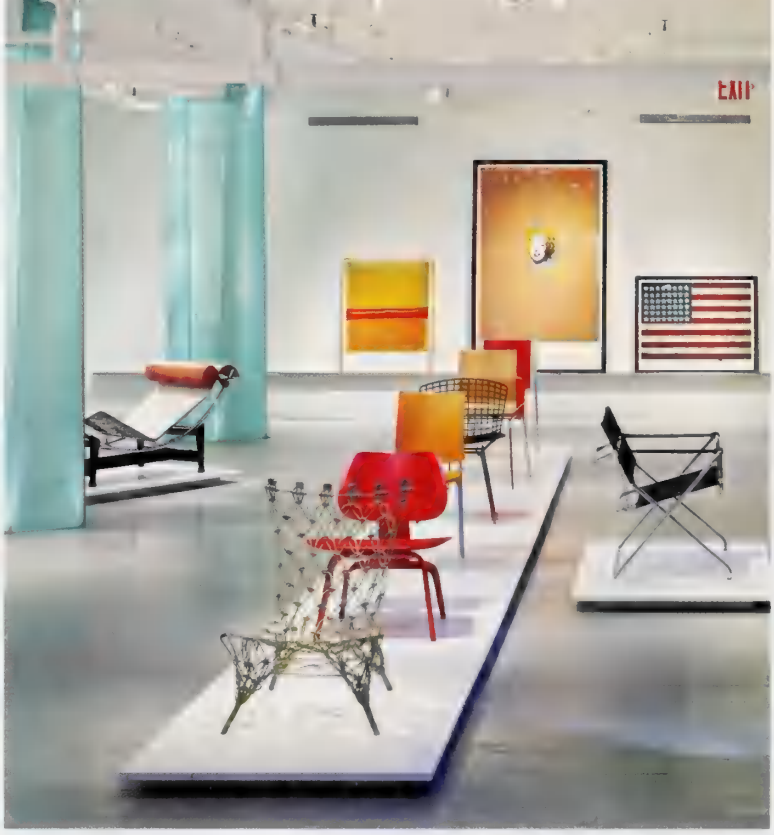
The 3-foot-long linear fluorescents were placed 4 inches behind the ceiling panels to create a patterned surface. "It has a change in tonality, partly inspired by a George Nelson lamp," Schwinghammer says.

The polyvinyl membrane rolls down along the walls behind merchandise shelving, and the fluorescents were placed farther behind the panels, about 1 foot, to minimize contrast. The illuminated plane is more of a solid white backdrop so the pattern of light does not compete with products on display. The merchandise is backlit with warm fluorescent lighting strips and then lit from the front of the casework by a cool neon light source. The two color temperatures create a layering effect that adds depth to the display.

"The shapes and colors of the products are so distinctive that they are the store's main design elements and can stand alone without highlighting," Schwinghammer says.

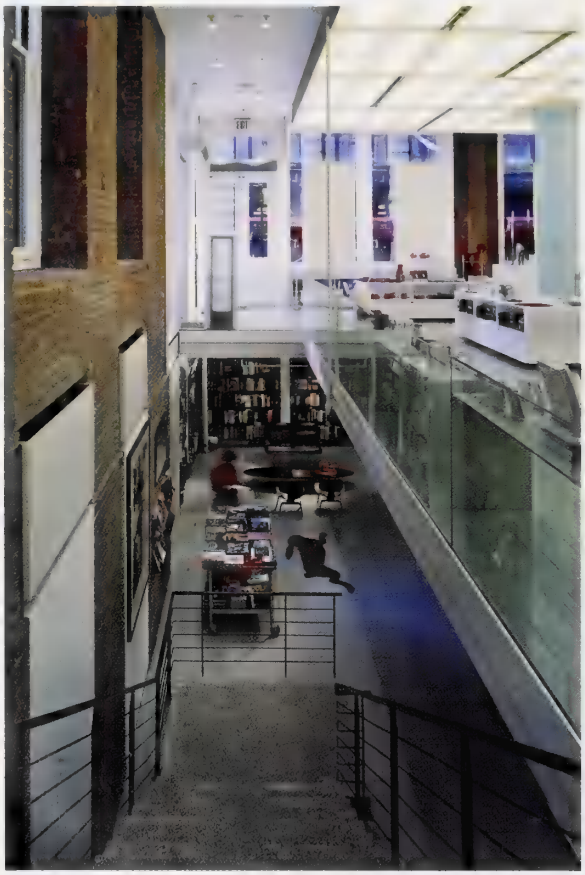
Cast-iron columns on the main floor are points on the grid around which display crendenzas and shelving units are organized. To retain a feeling for the emporium's historic beginnings, visible cast-iron columns are encased in angular, irregularly shaped slabs of translucent sandblasted glass. Because the glass structures are immovable but the architect wanted to incorporate a layer of light, end-glowing fiber-optic cables are set at the base of each column. "There's a ghostly silhouetting of the columns that adds architectural interest as an almost photographic effect," Schwinghammer says.

Project: *MoMA Design Store, N.Y.C.*
Architect: *1100 Architect—Juergen Riehm, David Piscuskas, principals; Pam Nixon, Ellen Martin, project managers; Erin Valli, Jamie Palazzolo, David Later, design associates*
Lighting designer: *Johnson Schwinghammer—Bill Schwinghammer, principal designer; Michelle Clement, project manager*
MEP engineer: *Lilker Associates*
Structural engineer: *Robert Silman Associates—Nat Oppenheimer*
Expeditor: *Arpad Baksa Architect*
Construction manager: *Seaboard Construction*
General contractor: *Gilman Construction*





On the store's lower level, AR70 and PAR30 track fixtures spotlight furniture vignettes set on display platforms (above left). Books are washed with custom T5 fluorescent picture lights (above right). The glass-edged staircase opens sight lines to the lower level (below).



Near the staircase on the main level is a display vignette that focuses on scarves, accessories, and textiles. It is illuminated with neon accent in several hues that can be mixed to complement specific merchandise. Since the store opened, the neon lighting has primarily been mixed to approximate an even white glow to coordinate with the general illumination, according to Schwinghammer, although lighting cued to the colorations of seasonal soft goods is a direction the display designers are experimenting with. "It gives them the option of having one pivot area in the floor plan that pops visually as you circulate through the space."

The main-floor shopping area yields to a glass-framed stairwell to one side, allowing a view to the lower level where books are displayed alongside modern furniture classics. (Floor planes on both levels are wood plank painted white.)

The surface-mounted track lighting uses two beam spreads—a low-voltage spot and standard-voltage AR70 and PAR30 lamps—to create pools of light. Bookcases downstairs are washed with custom T5 fluorescent picture lights in a stainless-steel shroud. "Lighting is more flexible downstairs," Schwinghammer says. "There is more contrast and drama. Upstairs is more about repetition and consistency. The products are what pull you through." ■

Sources

Stretch-membrane ceiling: *Barrisol*
Fluorescent channels: *A + L Lighting*
Fiber optics: *Lucifer Lighting*
Track fixtures: *Lightolier*
Neon: *Patrick Nash*
Lighting Controls: *Lutron*

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Interlocking volumes outlined in light enhance the lobby of a high-rise apartment tower in Manhattan

By William Weathersby, Jr.

Arriving in the lobby of a high-rise apartment building in Manhattan can be a misleading experience. Often sterile and nondescript, at times oppressive with ersatz period stuffiness, such lobbies can leave first impressions disengaged from the well-appointed apartments one might discover upstairs. Following in the footsteps of boutique hoteliers, developers of urban residential towers are targeting a well-designed lobby as a valuable amenity and marketing tool.

Betting that prospective design-savvy tenants would welcome an enhanced sense of arrival, the developers of the Foundry commissioned architect Joel Sanders to create a lobby interior with a distinctive Modernist look. A two-building rental complex in the Hell's Kitchen neighborhood on the west side of midtown Manhattan, the redbrick-clad Foundry was designed by building architect Schulman Claman Lichtenstein & Efron. Sanders designed the lobby interior for the main 12-story Foundry building at West 54th Street and 10th Avenue, as well as the smaller 55th Street entry for the adjacent 6-floor sister tower. The buildings share a courtyard garden.

"The client asked us to create a main lobby of balancing contrasts," Sanders says, "a space that brings together elements considered opposites—organic and inorganic, city and country, new and old."

Articulated with rectilinear volumes defined by textural planes, the 54th Street lobby plays with the notions of indoors and out. To underscore architectural tectonics with a subtle layer of illumination, Sanders collaborated with principal lighting designer Linnea Tillett of Tillett Lighting Design.

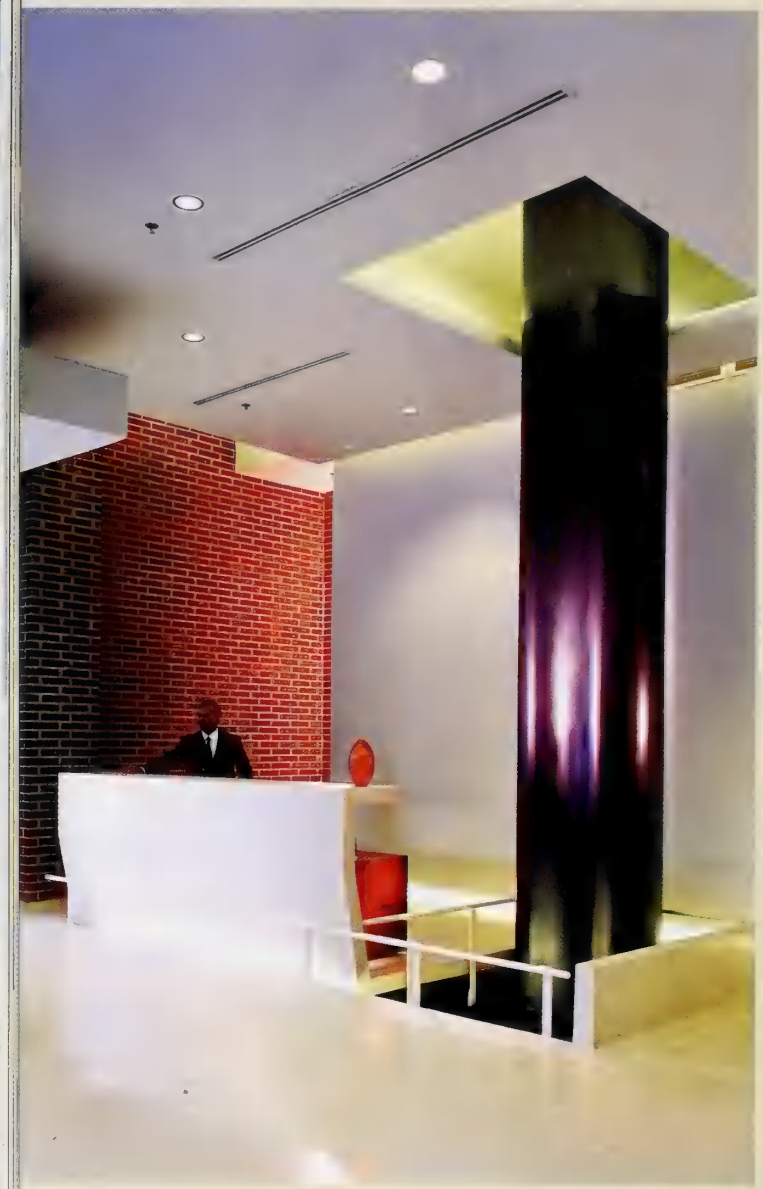


The lobby consists of two central interlocking volumes. An inner shell is composed of intersecting planes of terrazzo and Sheetrock. Surfaces fold inward to merge with furniture elements; a terrazzo concierge desk and settee seamlessly rise out of the ground plane. The monochromatic enclosure rests within a darker outer envelope formed by a textured water wall and a subfloor covered with black aggregate panels that resemble a bed of river rocks. As one moves deeper into the lobby, the white platform drops away to reveal more of the rocky underpinnings: A Minimalist installation seems crossbred with a rock garden.

"Lighting reinforces the notion of suspension, a room within a room," Tillett says. Backlit cutouts in the floor and ceiling planes of the inner "membrane" offer visitors glimpses of the surfaces beyond. The white-box geometry one might expect at the base of

Project: *The Foundry Lobby, New York City*
Architect: *Joel Sanders Architect—Joel Sanders, principal; Christoph Mueller Roselius, project architect; Brian Kimura, Dan Gallagher, project team*
Lighting designer: *Tillett Lighting Design—Linnaea Tillett, principal*
Electrical engineer: *Robert Ettinger*
Electrical contractor: *High Rise Electric*
General contractor: *Gotham Organization*

Backlit white planes of Sheetrock and terrazzo form an enclosure that seems to float within an outer shell (this spread and preceding page). T8 fluorescents illuminate cutouts around columns, while 70-watt incandescents light the dark rocky layer resting beneath the terrazzo platform.





The fiberglass-clad columns ascend to fluorescent-lit coves painted a medium green (above). In the lobby of the sister apartment tower (below), custom fluorescent lanterns pinwheel out of a canted wall paneled in walnut. The row of fixtures leads guests toward elevators.

a new apartment tower has been folded, perforated, and incised with light.

Fiberglass-clad columns with a mottled, coal-color finish pierce the horizontal planes. T8 fluorescents illuminate the ceiling cutouts, which are painted a medium green to heighten contrast. Lighting the aggregate-clad surface below the terrazzo floor are surface-mounted PAR30 fixtures. Grazing the water wall, halogen fixtures are fitted with pattern projectors to enhance the play of shadow and light. The use of standard, long-life lamps facilitates maintenance by the building service staff.

In the smaller lobby of the adjacent sister building, Sanders and Tillett worked with the same vocabulary of architectural materials and lamps to create a visual connection between the two entries. Here, however, lighting moves to the foreground. Rather than being captured in recessed coves, the glow of even illumination seems to have moved down one wall and pushed forth to greet entering pedestrians. Expressive custom sconces, angular fluorescent light boxes set at irregular intervals, pinwheel out of the walnut-clad wall to give a sense of movement and direction. ■

Sources

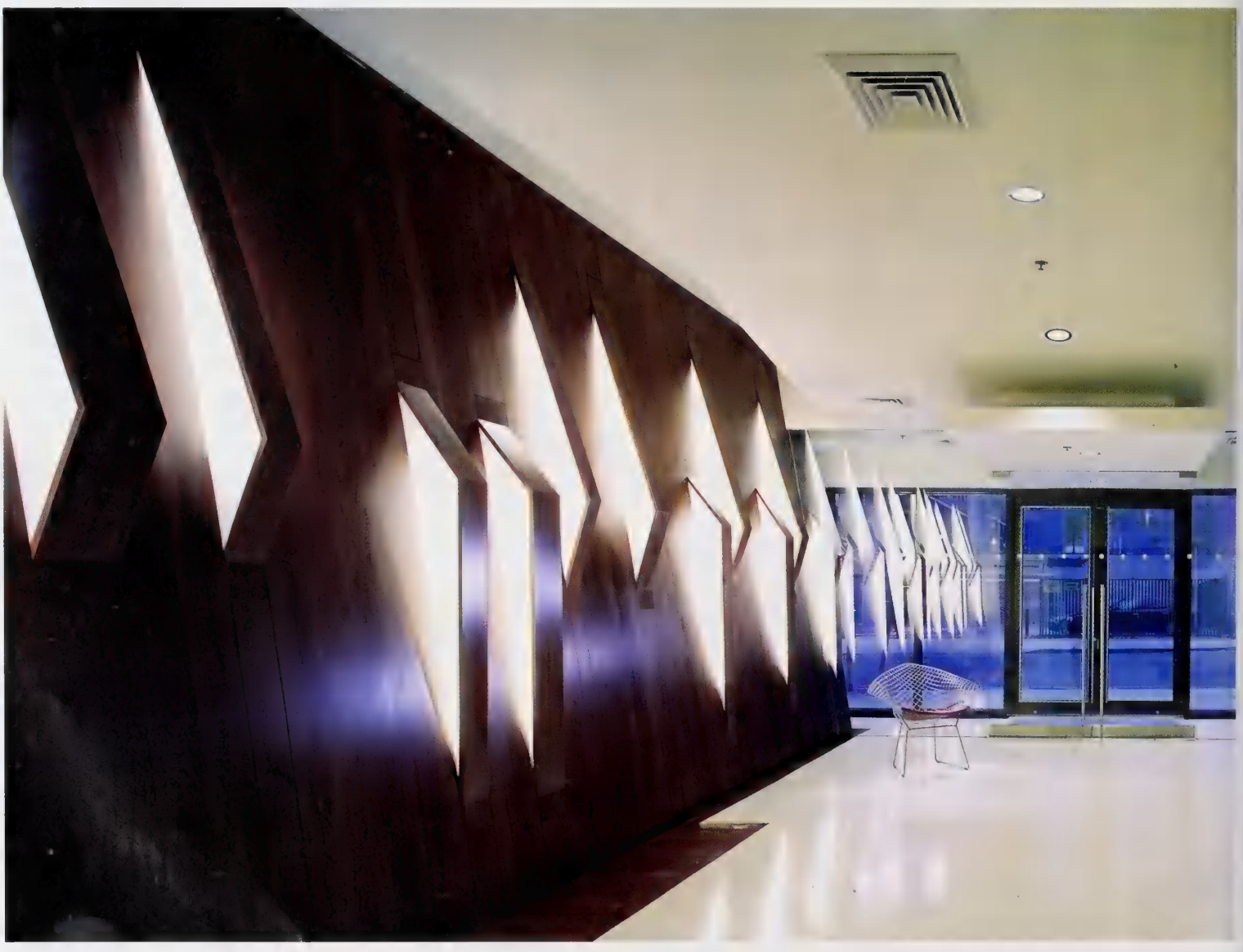
Cove fluorescents, downlights: *A+L Lighting*

Water-wall halogens: *Precision Projection Systems*

Incandescents: *Litelab*

Lamps: *Philips Lighting; General Electric*

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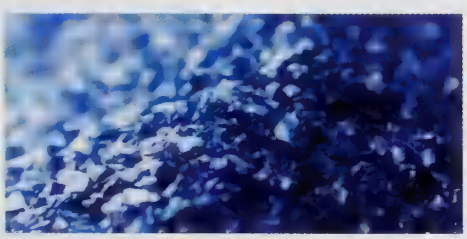


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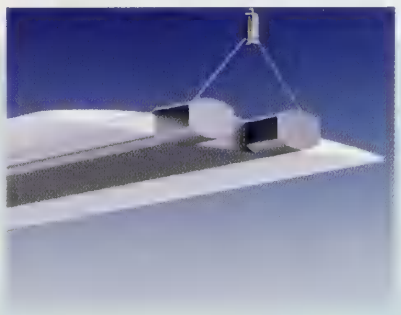
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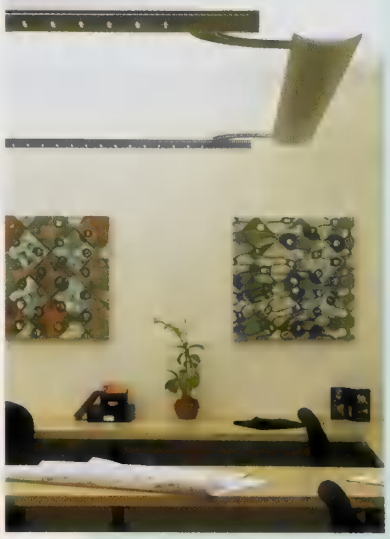
By Charles Linn, FAIA



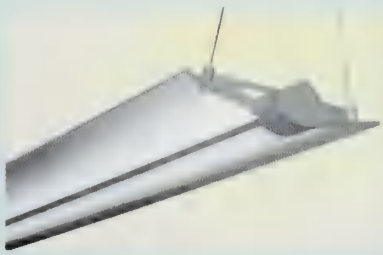
The small size of the T5 fluorescent lamp helps keep indirect fixtures compact without sacrificing their ability to uniformly distribute light over a the ceiling plane.

Fluorescent lamps have been slimming down. The T8 is ½ inch skinnier than the T12, and the newest version, the T5, is ⅛ of an inch thinner than that. The efficacy of these dowel-like lamps is slightly better than their fatter ancestors, they have excellent color-rendering characteristics, and one manufacturer claims its lamp will maintain 95 percent of its lumen output over its lifetime. Computer-designed optics allow T5-equipped indirects to distribute light over a ceiling more widely and uniformly than ever before. With all this going for the T5, it's no wonder that almost every manufacturer who makes indirect lighting has developed new luminaires for it.

One of Zumtobel Staff's recent offerings is the Orea (top). The top of the fixture is left open so light, emerging laterally from the lamps and flowing into wide, shallow, wedge-shaped lenses, can get to the ceiling. The lenses use microprisms to distribute the light downward and give the fixture its winglike appearance.



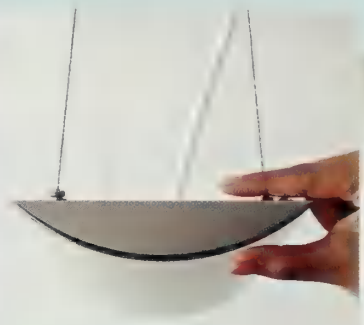
Ledalite's Meso X1 (upper far right) is the first commercially available uplight to use holographic diffusion material to distribute its luminous output. These clear, flat sheets use microscopic "microstructures" to distribute light. Depending on how this is applied, the sheets can disperse or constrain the output of a lamp, even shaping it into an elliptical or linear beam. The Meso X1's diffusers create a "batwing" light distribution without using a parabolic reflector or baffles.





Peerless Lighting, an Acuity Brands Company, has just introduced its Lightedge series (right). The T5's compact shape allows Lightedge fixture housings to be very shallow. The fixtures come in two forms, either curved or angular V-shaped, and with or without slots. They can be wall-mounted or cable-suspended, and "sweep joiners" may be used to connect corners. The luminaires' optics employ hammered-metal reflectors and diffusing acrylic. The endcaps are milled from blocks and joined to the fixture's extruded portion so precisely that the entire assembly appears to have been machined from a single, solid piece of anodized aluminum.

The Alente (middle far right), designed by Stefano Casciani, is being manufactured by a new company, Ivalo Lighting, of Willow Grove, Pennsylvania. The shell of the fixture and canopy are aluminum, and the grille and bottom lens are made from either clear or frosted polycarbonate disks—anodized black and blue finishes are available as options. One interesting point is that this specification-grade product can be bought singly. If you want just one for your home office, you can easily get it.



Boyd Lighting created a new division called Lightspace to produce and market the Whisper (bottom right and far right). At just over an inch in height and 6 inches wide, this fixture exemplifies the way in which T5 lamps allow optical systems that create wide, evenly distributed uplight to be miniaturized. Fixture options include bottom-mounted louvers and MR11 downlights. Like the Avalo, you don't have to buy a mile to get 4 feet. The Whisper can be bought one unit at a time. ■





Brio

...tasteful innovation



Brio (left) virtually disappears in the plenum compared with traditional low-glare parabolics.

T5 Luminaire

Innovative in form and function, Columbia's revolutionary Brio maximizes the advantages of T5 lamp technology, combined with the beauty of perf and the precision optics of parabolic louvers. The result is a stunning blend of performance and style in an astonishingly low profile housing.

- Brio is available in 2′x4′ and 2′x2′, two or three lamps, T5 or T5 HO, only 2½″ deep
- Brio Stretto is available in 4″x4′ and 4″x2′, one lamp, T5 or T5 HO, only 3½″ deep
- Meets IESNA RP-1
- Single wall wash option eliminates "cave effect"
- Double wall wash option illuminates corridors

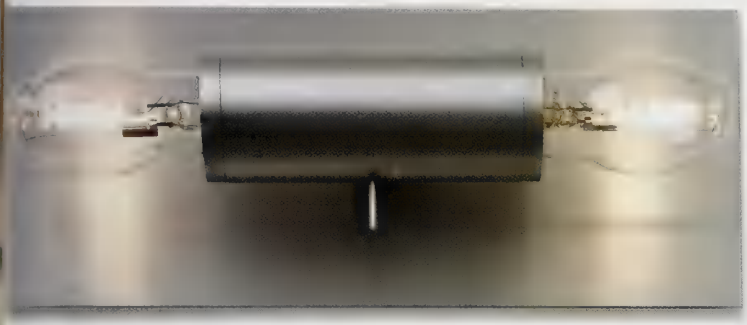
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Lighting Briefs

This is the last year Lightfair International will be held in San Francisco. The annual trade show/conference will now alternate between Las Vegas and New York. Check it out at the Moscone Center from June 3–5. *Rita F. Catinella*





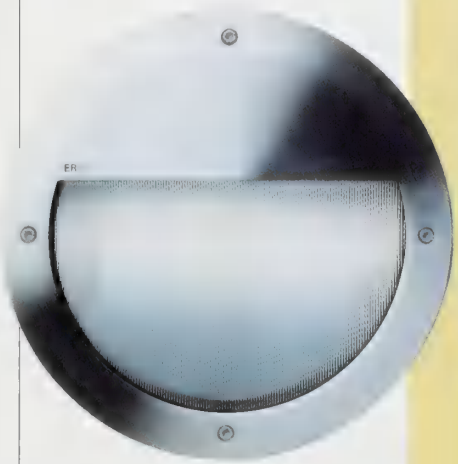
▲ Pure and simple

Purity is a utilitarian system of architectural lamp holders. It is available in several varieties of pendant, ceiling, wall, or table versions, and with a choice of lamp types. The Clarity line adds a subtle touch of decoration through the addition of a transparent glass shade. The shade is available in several styles and color options, including clear crystal, cobalt blue, and gold. Hardware on both fixtures is clear anodized aluminum, and the springs and glass mounting clips for Clarity are stainless steel. Designed by Douglas Varey, these fixtures suit a wide range of applications. 206/343-9323. Resolute, Seattle. **CIRCLE 200**

▼ In the washlight

Erco Lighting introduces the Visor floor washlights for nonglare lighting of outdoor floor areas and pathways. They combine newly developed reflectors with spread lenses for uniform ground lighting. The cover material is stainless steel and there are versions for different lamp types. Jilly is a new series of track-mounted washlights that feature reflectors that improve versatility. The series complements the existing Jilly spotlight series. Antiglare attachments ensure high visual comfort. 732/225-8856. Erco, Edison, N.J.

CIRCLE 201







◄ Old craft in a new light

Flos has a history of collaborating with the world's most innovative designers. In these new fixtures, the combination of traditional techniques and experimentation results in a contemporary look. The Cicatrices de Luxe series by Philippe Starck features handblown, hand-engraved leaded glass crystal vessels of various shapes and sizes. The fixture is available in three ceiling versions and a floor lamp. The XXL is part of the Metropolitan Collection by Antonio Citterio. It is an incandescent floor lamp with an external diffuser of transparent glass surrounding an internal diffuser of blown opal glass. The brass column is 79" high. 631/549-2745. Flos USA, Huntington Station, N.Y. **CIRCLE 202**



► Color chameleon

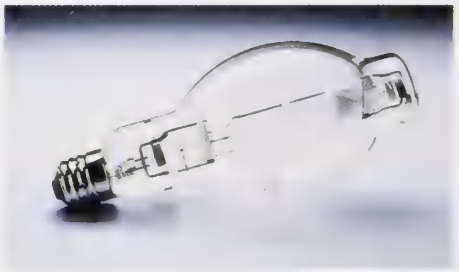
Chameleon, from Architectural Area Lighting, is a new wall sconce that can be easily configured as an uplight, downlight, or uplight-downlight for interior and exterior applications. It is shown here with a conical glass shade topped by concentric rings with colored lens options. Chameleon is wet label listed. Also new from the company is the Mini-eSconce. This ADA-compliant fixture is designed for exterior or interior environments, includes stainless-steel or copper-fascia panel options, and is available in up, down, or up-and-down illumination. 714/994-2700. Architectural Area Lighting, La Mirada, Calif. **CIRCLE 203**



Lighting Briefs

▼ High lumen output

At LightFair 2002, Venture Lighting will introduce its new 875-watt lamp, part of Venture's full line of energy-efficient Uni-Form Pulse Start Metal Halide System lighting. With 80,500 mean lumens, this new lamp gives 12,200 more mean lumens than the standard 1,000-watt lamp. It also saves up to 157 system watts compared to the standard 1,000-watt lamp. 800/437-0111. Venture Lighting International, Solon, Ohio. **CIRCLE 204**



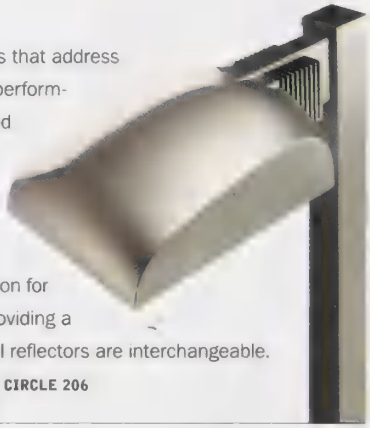
◄ Weighty light

Bar Bell is a decorative table lamp that provides softly diffused ambient lighting. Two round acrylic shades measuring 8½" in diameter and 6" in height are stacked one on top of the other and connected by a partially exposed solid brass stem. The bottom shade hovers 1" above the base, obscuring the lamp stem and sockets to create a design in which light radiates from the entire fixture. Illumination is provided by two 60-watt candelabra lamps in each shade, controlled via an in-line dimmer switch. Available in several finishes. 914/698-7799. Nessen Lighting, Mamaroneck, N.Y. **CIRCLE 205**



► Outside in

Aeris is a new line of low-profile luminaires that address both daytime appearance and nighttime performance. Available in two sizes, Aeris 1 is sized to provide distribution patterns for walkways, pathways, and common areas, while Aeris 2 is designed for open parking areas, entry drives, and roadways. A wall mount option allows lens-up orientation for indirect lighting of atriums and lobbies, providing a consistent look from exterior to interior. All reflectors are interchangeable. 404/853-1400. Lithonia Lighting, Atlanta. **CIRCLE 206**



► Keeping a low profile

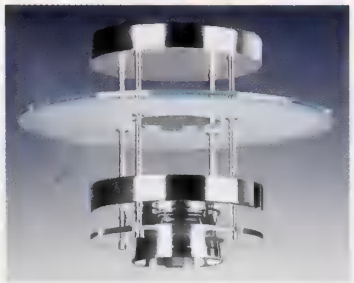
The new Triad T8 is a super-low-profile electronic fluorescent ballast ideal for pendant mount and other specialty lighting applications. The extremely compact size allows flexibility for lighting designers and fixture manufacturers to produce smaller, more optically efficient luminaires. Two models cover multiple lamp applications, and instant-start operation provides maximum efficiency. 615/316-5100. Universal Lighting Technologies, Nashville. **CIRCLE 207**

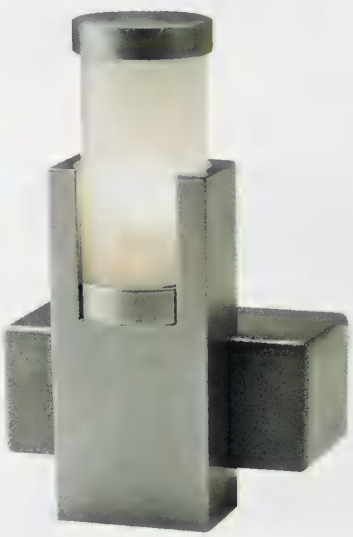


▼ Light energy

Energie, a new importer of lighting, introduces several new fixtures. Syltoplus conceals miniature T5 fluorescent lamps inside a 1¼"-diameter extruded aluminum cylinder. The cylinder twists to adjust the light source up to 180 degrees. The candlelike design of Free integrates easily with many styles, and the circular design of Centra features a dual optical system centered around an aluminum reflecting disk. 720/963-8055. Energie, Lakewood, Colo. **CIRCLE 208**









▲ Bing (badda) bang

Bing and Bang are two new wall sconces by d'ac Lighting that provide nonglare, softly diffused ambient area lighting. Created from polished, sandblasted, hand-blown translucent white Italian glass, each fixture protrudes only 3¾" from the wall, meeting ADA requirements. Bang, shown here, measures 15" x 9" and mounts flush to the wall. The elongated contours, similar to a champagne flute, allow diffused light to be emitted upward and against the wall surface while creating an ambient outward glow. Illumination is provided by a choice of one double-ended, 100-watt halogen lamp or one 13-watt quad tube fluorescent lamp. Two polished chrome nuts secure the shade to a metal mounting plate. 914/698-5959. d'ac Lighting, Mamaroneck, N.Y. **CIRCLE 209**

BRUCK

LIGHTING SYSTEMS



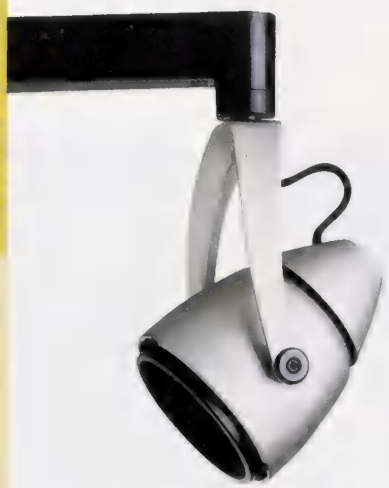
V/A, one of eight systems from Bruck, is a low profile track system that can easily change directions and elevations. Available in straight or curved segments, in chrome, matte chrome, or gold finish.

Lightfair · Booth 826

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Lighting Briefs



▲ Ceramic arc metal halide

Juno's MH2 Track Fixture Series is designed to utilize the full range of PAR20/PAR30/PAR38 and ED-17 ceramic arc metal halide lamps, and features a modular ballast/fixture format that reduces fixture size and maximizes versatility. 847/813-8443. Juno Lighting, Des Plaines, Ill. **CIRCLE 210**

▼ Spotlight on bulbs

The new Halogena indoor floodlight and spotlight bulbs from Philips last 50 percent longer than standard incandescent spotlights and floodlights, and the halogen technology makes the light whiter and brighter. The easy-to-grip shape of the new bulb also makes changing it easier, especially in narrow, recessed fixtures. 800/555-0050. Philips, Somerset, N.J. **CIRCLE 211**



▼ Celestial shade

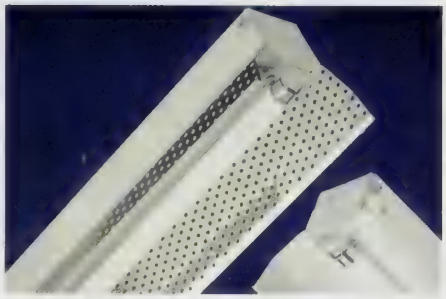
The Celeste wall sconce is among the latest introductions to Canadian lighting manufacturer Hemera's collection. Designed by Vincent Dion, the Celeste features a mesh pleated shade over a polished nickel-plated structure. The main features of the Celeste are the stainless-steel meshing and the original canopy, which eliminates all apparent fasteners. The dimensions are 10" high by 6" wide by 4" deep, meeting ADA requirements. All of Hemera's products are designed and manufactured within the company's own facilities in Montreal. Celeste is part of a collection that consists mainly of high-end decorative contract lighting products for residential, commercial, corporate, and hospitality applications. 514/277-9363. Hemera, Montreal, Canada. **CIRCLE 212**



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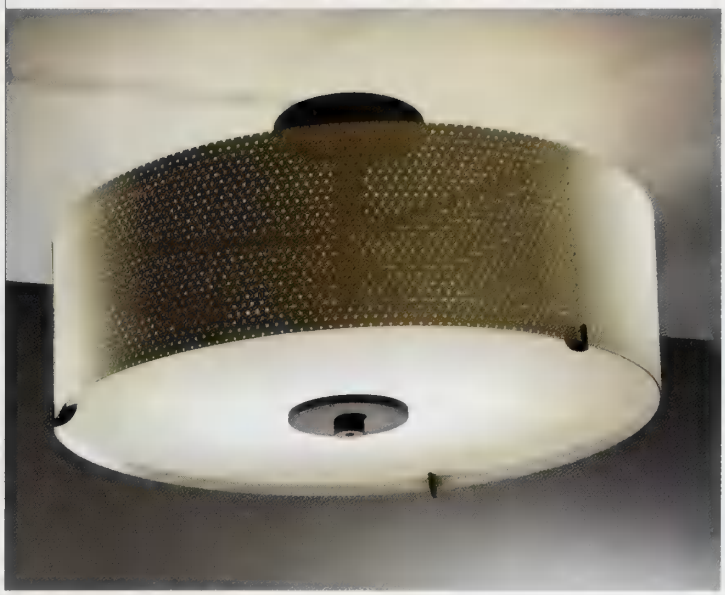
► When size matters

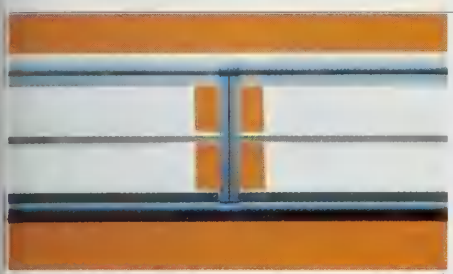


The new Low-Profile T5 Direct MS5 Series of fluorescent lighting fixtures is specifically designed for surface and pendant-mount direct applications that demand high light levels from a compact luminaire. The 5,000-lumen-output T5 is 40 percent smaller than the T8 and comes in one- or two-lamp basic configurations in several lengths, as well as a staggered version. Available reflectors include white, specular, or galvanized finishes in solid or perforated styles. 404/853-1400. Lithonia Lighting, Atlanta. **CIRCLE 213**

▼ Light matrix

The Matrix Collection includes a sconce, table lamp, floor lamp, pendant, and ceiling fixture. A key element of the line lies in its flexible shade concept. Matrix features a slide-on shade design for ease of replacement. The shade material consists of an amber-hued perforated paper backed by clear LEXAN. The metal components are finished in a soft textured bronze and the wood finish is walnut. Lamp choices include two 75-watt A-lamps or two 13-watt CPF. Custom options are also available. 800/978-8828. Neidhardt , Redwood City, Calif. **CIRCLE 214**





▲ Nothing to reflect upon

There are no conventional reflectors or louvers in the new Aria luminaire. Instead, a microprism structure directs low-glare light downward, providing glare-free lighting for the most demanding applications, including offices with conventional CRT screens, flat-screen VDTs, laptops, and PDAs. Aria also features a continuous-run design and is available in 9" single panel or 14" double panel configurations. 800/932-0633. Zumtobel Staff Lighting, Highland, N.Y. **CIRCLE 215**

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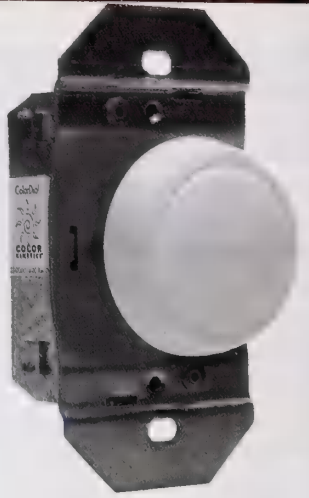
Lighting Briefs



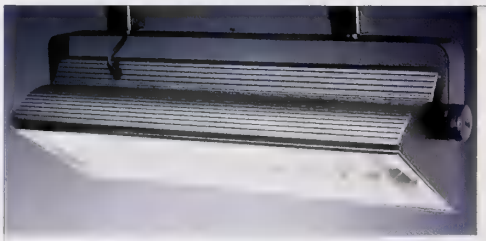
▲ Subtle and clean

Designed to be suspended by aircraft cable, Pizzicato luminaires promote a clean appearance and allow for mounting flexibility. Solid or perforated housings provide the choice between direct and indirect or indirect only light distributions. Pizzicato is available in one, two, or three lamp versions using T8 or T5/T5HO lamps for maximum energy efficiency and color rendering. Electronic ballasts are standard. 800/234-1890, ext. 6688. Day-Brite Lighting, Tupelo, Miss. **CIRCLE 216**

► Controlling effect



ColorDial is the dial controller for Color Kinetics digital lighting fixtures. ColorDial's control knob allows users to alternate among a variety of preprogrammed colors and color-changing effects without any added programming or setting of dipswitches. Users simply press the dial knob to select the desired effect and turn the knob to change the speed of the effect. 888/FULL-RGB. Color Kinetics, Boston. **CIRCLE 217**



▲ Aisle illuminator

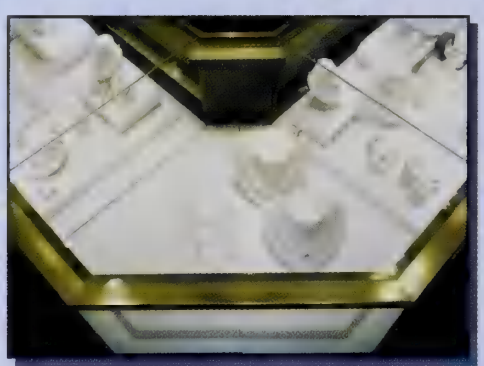
W.A.C. Lighting's new line of compact fluorescent wall-washer track heads are ideal for commercial applications such as supermarkets and retail stores. An energy-efficient alternative to incandescent, compact fluorescent lighting consumes as little as one-fifth the power and lasts up to 13 times longer. The units are offered in five different wattages, adaptable to four different W.A.C. Lighting track systems, and are designed for use with most major brands in retrofit projects. 800/526-2588. W.A.C. Lighting, Garden City, N.Y. **CIRCLE 218**

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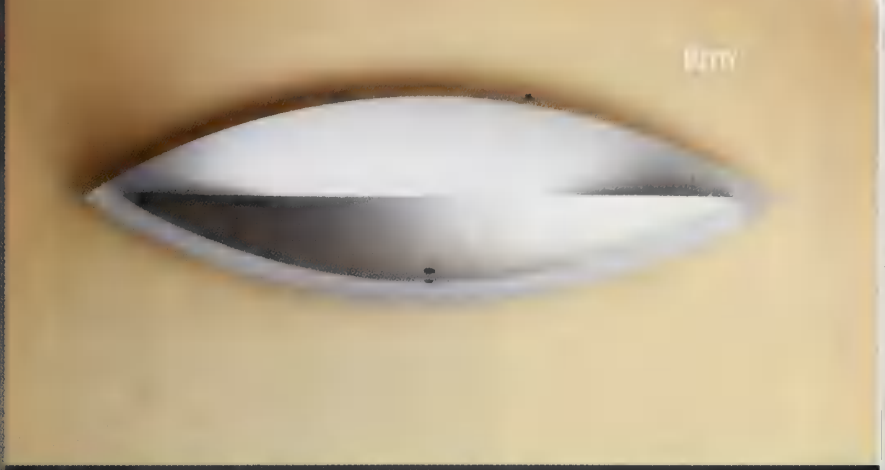


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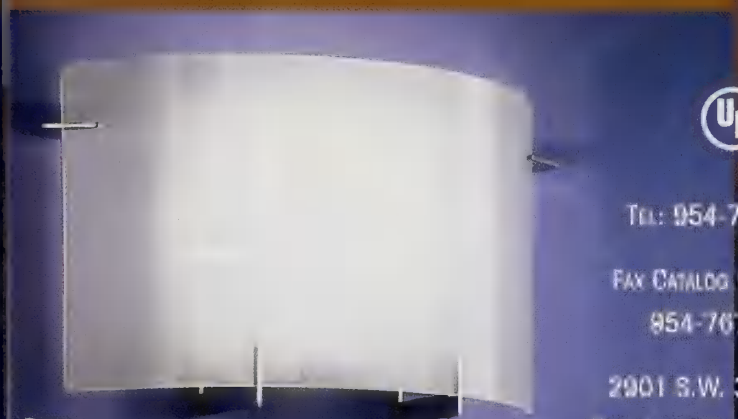






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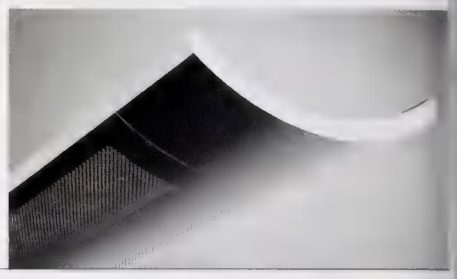
► Stainless track-lighting system

Hubbell Lighting combines the look of a stainless finish with the advantages of a two-circuit track system to create a flexible, clean-looking, integrated series. Two available track-head styles are combined with smooth or etched stepped-glass shades, spun- or screen-metal shades, or barn doors. There are also yoke-mounted and wall-wash fixtures. All combine with matching stainless track and accessories. 540/382-6111. Hubbell Lighting, Christiansburg, Va. **CIRCLE 219**



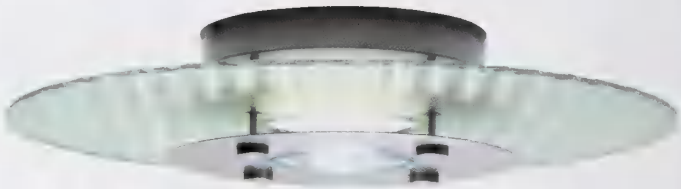
▼ Focus your attention

Focal Point has reintroduced their Verve line of indirect lighting. Available in both pendant and wall-mount versions, Verve's indirect light distribution offers soft illumination while assuring ceiling uniformity. Each pendant variation may be row-mounted to any run length, or as individual 4', 8', or 12' fixtures. Wall-mount variations also adapt to both extended-run and individual-mount conditions. Verve II's slim profile is enhanced by perforations in the housing. 773/247-9494. Focal Point, Chicago. **CIRCLE 220**



▼ Giving light form

Mitra is a new large-scale ceiling-mounted fixture from Lightform+, a manufacturer of custom and standard lighting sold through Forms+Surfaces. Drawing on Forms+Surfaces' palette of architectural materials, Mitra features an expanse of patterned glass floating beneath a powerful CFL light source. Mitra is available in two models, a 42" round version and a 36" square version. 800/451-0410. Forms+Surfaces, Carpinteria, Calif. **CIRCLE 221**



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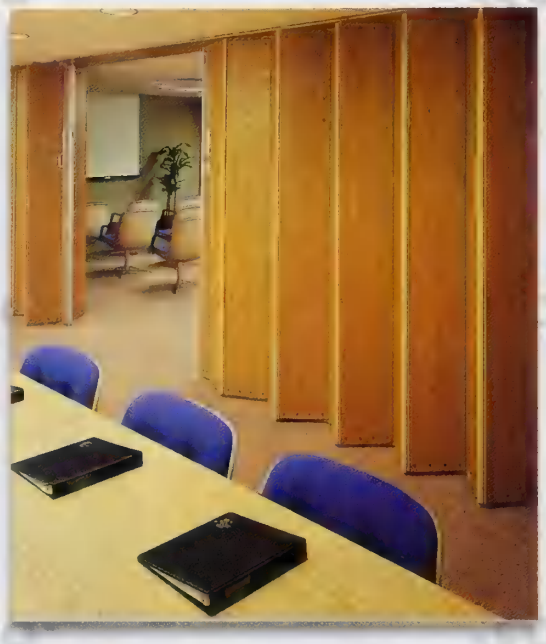


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New Products

The National Roofing Contractor's Association (NRCA) has decided to help organize the repair and replacement of the Pentagon's **roofing system** necessitated by the September 11th attack. NRCA has received donations of labor, materials, and $125,000 for the project, mostly from **small, family-owned businesses**. NRCA's 2003 Convention and Exhibit will be held February 11–14 in New Orleans. *Rita F. Catinella*





An impregnated oil protects Soveco shingles from insects and fungus.

Wooden roofing shingles designed to stand up to tropical elements

The French company Soveco produces patented roofing shingles made of wood tiles guaranteed to weather storms, heavy rains, hurricane winds, snow, salty air, and sea spray for at least 60 years. The Soveco process is the only one in the world that has been approved to last against extreme winds for more than 10 years in tropical areas, says the manufacturer. France's building materials research center, the CSTB, has tested and officially certified the resistance of Soveco shingle cladding against hurricane winds of over 180 miles per hour. A natural insulating product, Soveco shingles can be made from any wood species and come in a variety of sizes, shapes, and colors. Each shingle measures 23.6" long for roof slopes of 15 to 35 percent, and 15.7" long for slopes of 35 to 40 percent, with shingle width at 4.7". Thin shingles are 3 to 8 mm thick, and thicker ones measure 10 to 14 mm. Each shingle is also impregnated with a special oil that guarantees its life span for 30 years against the effects of humidity, insects, and fungus. Shingle shapes include rectangular, round, and beveled, depending on the application. A fully patented packaging protects thin shingle ends and ensures total treatment impregnation and drying without splintering or warping. Soveco is looking for commercial partners as dealers or sole importers of its products. 312/222-1235. French Technology Press Office, Chicago.

CIRCLE 222



More colorful TPO roofing membrane

Stevens Roofing Systems now offers its Stevens EP brand of thermoplastic polyolefin (TPO) membrane in eight new colors, in addition to standard white. The colors include Light Slate Gray, Pewter, Buckskin, Desert Brown, Patina, Dark Ivy Green, Neon Blue, and Terra Cotta. Each is available in nominal 45 mm and 60 mm thicknesses. All Stevens EP membrane products are scrim-reinforced for added strength and durability. Matching unreinforced material is also available for flashing pipe boots and inside and outside corners.

Stevens EP is designed for commercial, industrial, and institutional applications. The membrane can be installed using a variety of methods, such as mechanical attachment, fully adhered, stone and paver ballast, or as a vented roofing system. Several warranty types and terms are available, and some Steven EP membranes are available with a 55-mm layer of fleece added to the underside of the 45- or 60-mm membrane. 877/TPO-ROOF, ext. 1004. Stevens Roofing Systems, Holyoke, Mass.

CIRCLE 223

PV system for commercial roofing

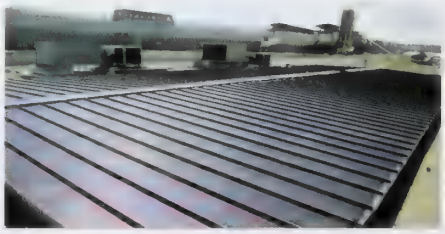
The Solar Grid photovoltaic system from Garland offers a fixed electricity rate and reduces dependence on the aging utility infrastructure. Prior to installing a SolarGrid PV system, a Garland representative provides a complete roof assessment to determine the condition of the existing system and whether it needs to be upgraded. SolarGrid's system includes PV modules, combined boxes, inverters, transformers, and the hardware necessary to attach it to various commercial roof systems, including standing-seam metal roofs. 800/321-9336. The Garland Company, Cleveland.

CIRCLE 224



New Products

► California skies



San Francisco International Airport has installed a 20-kilowatt array of building-integrated PV roofing panels to provide a portion of the power needed at one of the airport's support buildings. The system, designed and installed by Renewable Energy Resources of Occidental, Calif., uses "peel and stick" Uni-Solar PV laminates bonded to metal roofing pans and installed in modular units. 800/843-3892. Bekaert ECD Solar Systems, Troy, Mich. **CIRCLE 225**



▲ Depot back on track

The Milwaukee Road Depot and Train Shed in Minneapolis, vacant since the 1970s, has been restored. The standing-seam roof on the train shed now utilizes 66,000 square feet of Petersen's Snap-Clad 24 gauge steel panels finished in a custom Diplomat Gray Kynar 500 paint. In addition, the project uses 22,000 square feet of Pac-Clad 24 gauge steel material for miscellaneous flashing details. 800/323-1960. Petersen Aluminum, Elk Grove Village, Ill. **CIRCLE 227**

► Steel roofing shingles



Centura is a new line of lightweight, 29-gauge Galvalume steel roofing shingles. Centura shingles are coated with Fluropon cool-pigment paint developed to meet energy-saving criteria for roofing materials by deflecting the UV rays of the sun. The shingles are guaranteed against excessive color fading for 25 years from the date of initial installation. Their smooth surface helps to shed snow easily, which can reduce damage to the roof and gutters. 800/BUILD-GP. Georgia-Pacific, Atlanta. **CIRCLE 229**



◄ Prime real estate

Rheinzink was selected for the integrated roofing design for the Paul-Lincke-Höfe project in Berlin. Five commercial buildings that were part of a former telegraph factory were transformed into 166 lofts with a total living space of 15,000 square feet. Approximately 3,500 square meters of roof were covered using a traditional double-standing-seam technique. The project won a "residential real estate" award at the Eleventh Annual Real Estate Congress, held in Frankfurt, Germany. 604/291-8171. Rheinzink Canada, Burnaby, British Columbia. **CIRCLE 226**

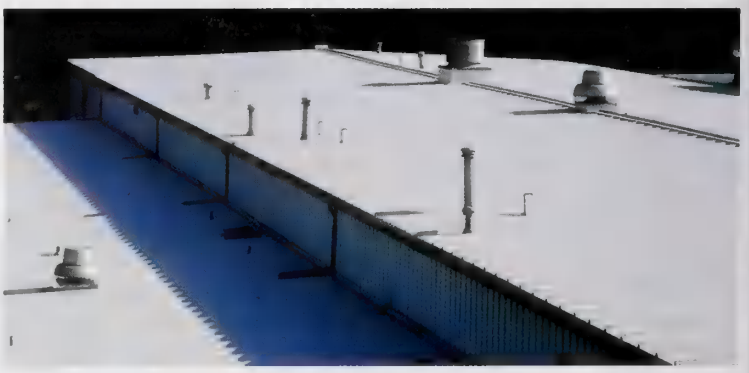
▼ Tile look, metal performance

Met-Tile has updated its system of "tile panel" roofing that combines the look of tile and the high performance of metal to include a new standard paint finish. The silicone modified polyester paint system is a low VOC finish that offers durability and corrosion resistance and is suitable for water catchment applications. It is available in 10 standard designer colors and in custom colors. The Met-Tile system carries a 230+ mph wind rating based on UL wind-uplift testing. The system is also UL-listed for impact resistance. The panels weigh only a fraction as much as tiles. 909/947-0311. Met-Tile, Ontario, Calif. **CIRCLE 228**



▼ Reroofing while you work

When Hubbell Die Casting needed to reroof its Moultrie plant, a new prepainted standing-seam steel roofing was installed over the facility's existing metal system. The project also involved installing 1½" of batting between the two roofing systems, which increased the roof's R-value by an additional 10 points. 888/544-6447. American Iron and Steel Institute, Washington, D.C. **CIRCLE 230**



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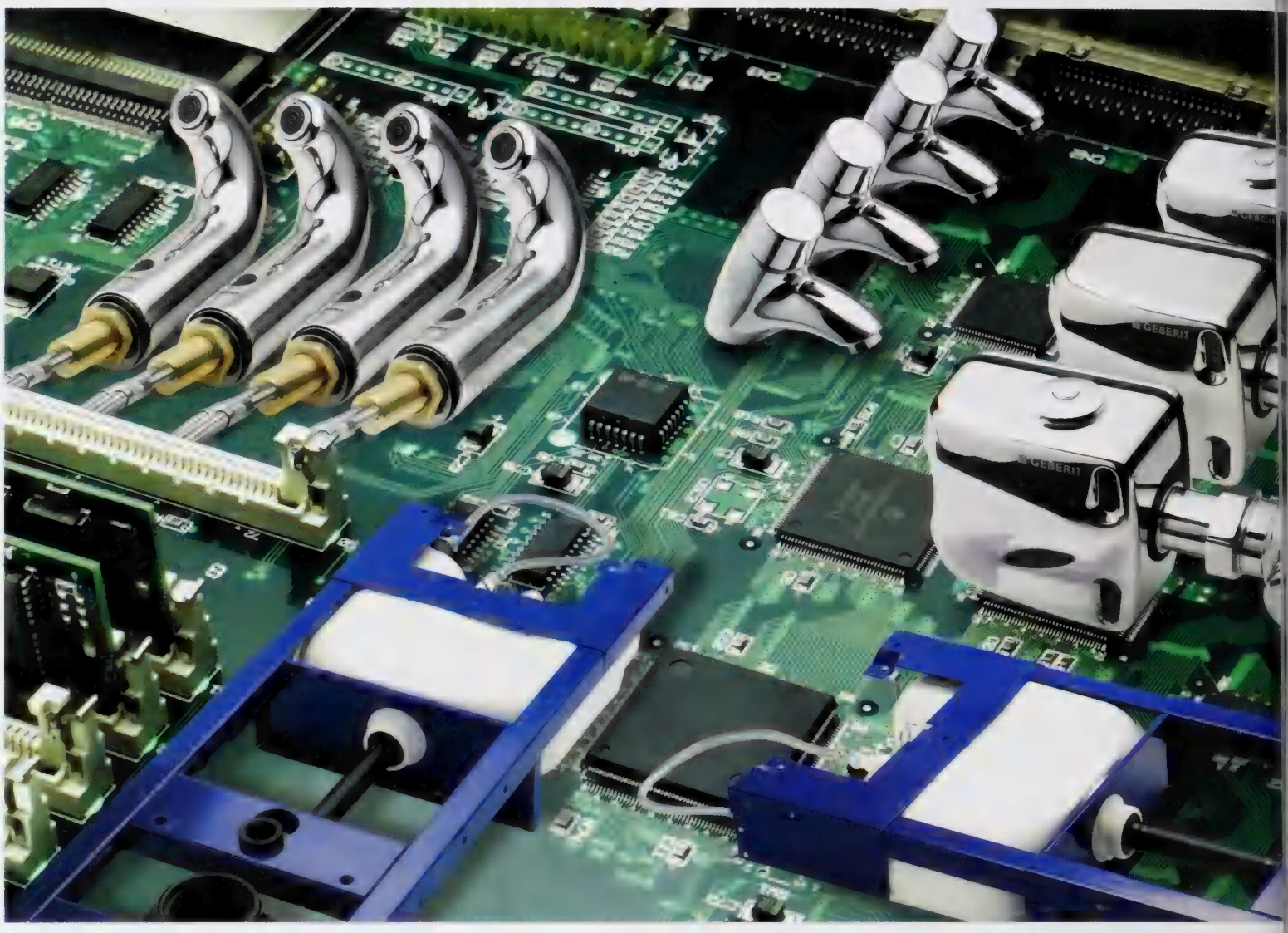
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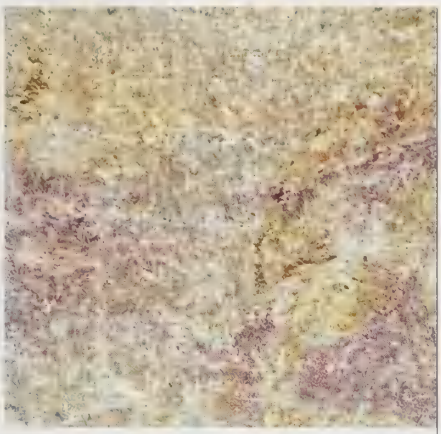
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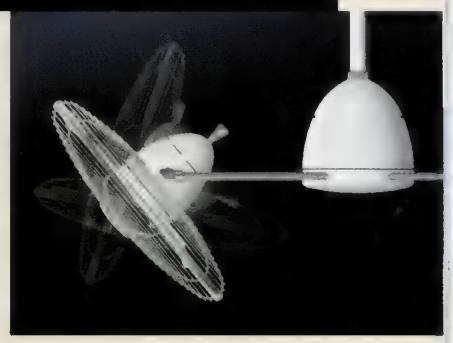
► Tasteful limestone



Derived from a subterranean quarry beneath the Corton vineyards in France, Haifa's Corton Limestone is distinguished by burgundy-colored veins, believed to be the result of rainwater mixing with fallen grapes. Haifa claims that the company's patented process that gives freshly quarried stone the look of authentic antiquity can even deceive experts. Haifa is marketing the stone for wine-cellar flooring, shelving, and wall cladding. Most recently, Haifa has been selected to supply Corton and Jerusalem limestone for the kitchen restoration of Blair House, the official presidential guest house in Washington, D.C. 561/641-4911. Haifa, Lake Worth, Fla. CIRCLE 231



Gyro fan
G Squared Arts



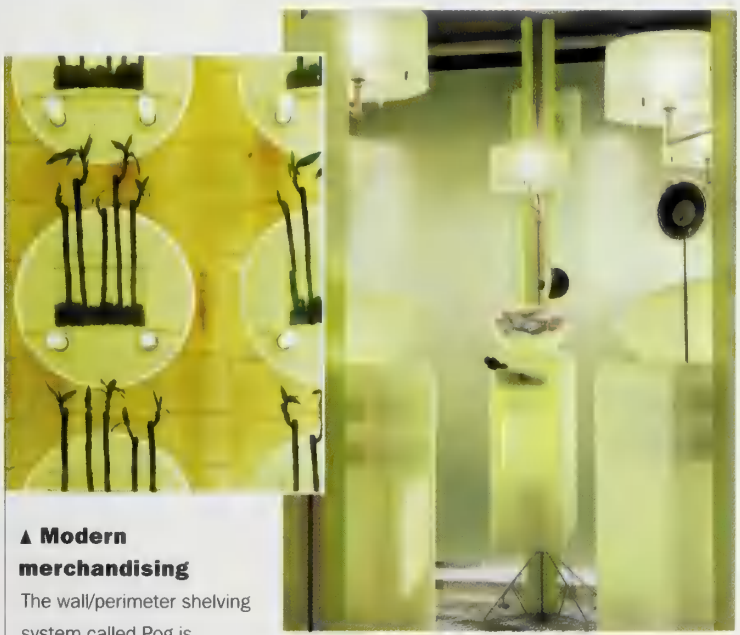
Gyro is the newest fan concept from G Squared Arts president Mark Gajewski, a three-time winner of the Chicago Anthenaeum Museum of Architecture and Design "Good Design Award." Gyro is a 21st-century version of the antique gyro fan, combining both oscillating-fan and ceiling-fan functions. The design allows the fan to gently sweep the room or direct the airstream where it is needed by remote control. The side fans can be tilted individually. Available in either a brushed-nickel, chrome, and wood finish or a white and chrome finish. A removable, fully dimmable light kit is included. Other fans in the G Squared line include Acero, Flyte, and eMotion. 877/858-5333. G Squared Arts, San Luis Obispo, Calif. CIRCLE 232



▲ Valuable deposits

The Green River Stone Company offers fossil art and fossil stone products that have been unearthed from stone deposited 50 million years ago and extracted by hand from the company's private quarry. They produce individual fossil specimens, artistic fossil murals, and other stone products for museums, private collectors, interior designers, and architects. Murals range in size from 18" x 24" to 4' x 8', and larger pieces are also available. The quarry lies in the heart of Fossil Lake's sedimentary deposits. Fossil Lake was once a freshwater lake with a subtropical climate ideal for palm trees, crocodiles, turtles, and an abundance of fish. 435/753-4069. Green River Stone Company, Logan, Utah. CIRCLE 233





▲ Modern merchandising

The wall/perimeter shelving system called Pog is shown here with acrylic face-outs and thick, beveled, acrylic shelving. Sorbetti acrylic in yellow/green supports the "twist and lock" inserts of the Pog system, allowing easy removal and replacement. The background is peeled bamboo laminated to clear acrylic and backlit. The Cosmos cosmetic merchandising unit features pieces that are easily adjustable, using a system of milled aluminum pucks. 800/350-4127. B&N Industries, San Carlos, Calif. CIRCLE 234

Product Briefs

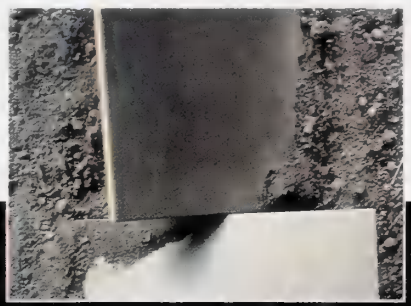
▼ Safer homes

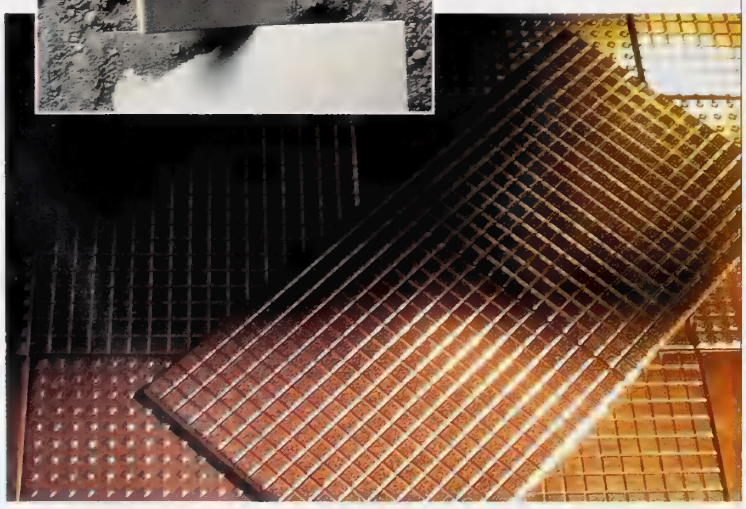
Liberty Safe introduced a new residential safe at the 2002 International Builder Show in Atlanta. The safe provides UL-listed security and certified fire protection for important valuables, papers, and personal treasures of the home. The safe features electronic touch-pad access, interior lighting, hardware plated in either brass or brushed aluminum, and functional storage capacity. Designed to be concealed, the product is offered in three sizes—4, 8, and 12 cubic feet—and five exterior colors, including sage, khaki, rust, night black, and diamond white. The interior of the product is fully upholstered with a rich pin-dot velour in silver or beige that is matched to the exterior. 866/263-4766. Liberty Safe, Payson, Utah. **CIRCLE 235**



▼ Spanish styles

Dore floor tile (far bottom) from Tau's high-tech Metalica Collection, is one of several new tiles available from Spain. The metallic coated tiles incorporate a futuristic look of studded metal plating or grillwork. The collection includes wall and floor tiles in both steel (Alpax) and golden finish (Dore). The floor tiles feature an antislip grid and a special finish treatment. Cleve (below left) by Pamesa incorporates "dry glazing," the latest technology in the production of all-through-body porcelain. During the pressing process, dry powdered pigments are seeded onto the surface of the tile to create coloration and pattern. 305/446-4387. Tile of Spain Center, Trade Commission of Spain, Coral Gables, Fla. **CIRCLE 237**







▲ Hardwood plywood/veneer

Columbia Forest Products has introduced a line of certified hardwood plywood and veneered particleboard (right), as well as Europly (above), a premium plywood panel featuring a domestic hardwood face and a multilayered core comprised of 60 percent imported Polish birch and 40 percent alder. 800/547-4261. Columbia Forest Products, Portland, Ore. **CIRCLE 236**

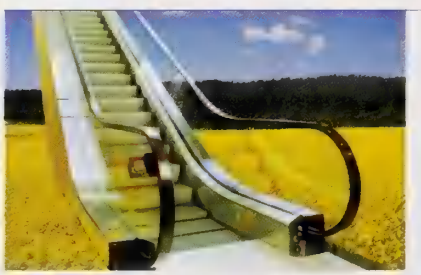






▲ Robotic parking

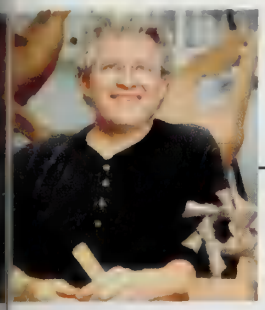
The first fully automated parking garage in America, located in Hoboken, N.J., is 56' tall, 100' deep, 100' wide, and can hold 324 cars. To park, the driver puts his or her car in one of several entrance stations and inserts a key card into a slot. The car, now protected on a steel pallet, is lifted under computer guidance into one of the available slots in the heart of the building. Retrieval is also automatic. 888/762-6727. Robotic Parking, Clearwater, Fla. **CIRCLE 238**



▲ Save space, oil, and energy

The KONE ECO3000 escalator, recently introduced to the North American market, saves space, oil consumption, and energy. The escalator offers a smaller footprint, a wide selection of finishes, and the 96 percent efficient KONE ECO3000 Drive System. A compact, chainless drive eliminates the need required in standard escalators to lubricate the drive chain, and the optional KONE EcoStart conserves energy by adjusting voltage and current up to 120 times per second in response to escalator workload. 800/956-KONE. KONE, Moline, Ill. **CIRCLE 239**

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I also wanted to say something about childhood and our fascination with flight. To me, flight represents freedom and rising above our problems and gaining that all so important 'perspective' on life. I feel like I have to take a couple of flights a year just to get off of the earth and regain some of that 'vision'.

— Gary Lee Price

"Wings"
Bronze, 18", 50" and 7ft. high

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Product Briefs

▼ Deck the walls

Wall Art wall base is a premanufactured pattern for inside and outside corners. It is not a laminate, which the manufacturer claims makes it more durable and easier to install than wood, stone, or metal. Available in 10 patterns, Wall Art gives designers the opportunity to create the effect of a wall trim without the high costs. Available now in the United States and Canada. 800/899-8916. Johnsonite, Chagrin Falls, Ohio. **CIRCLE 240**





▲ Colorful concrete

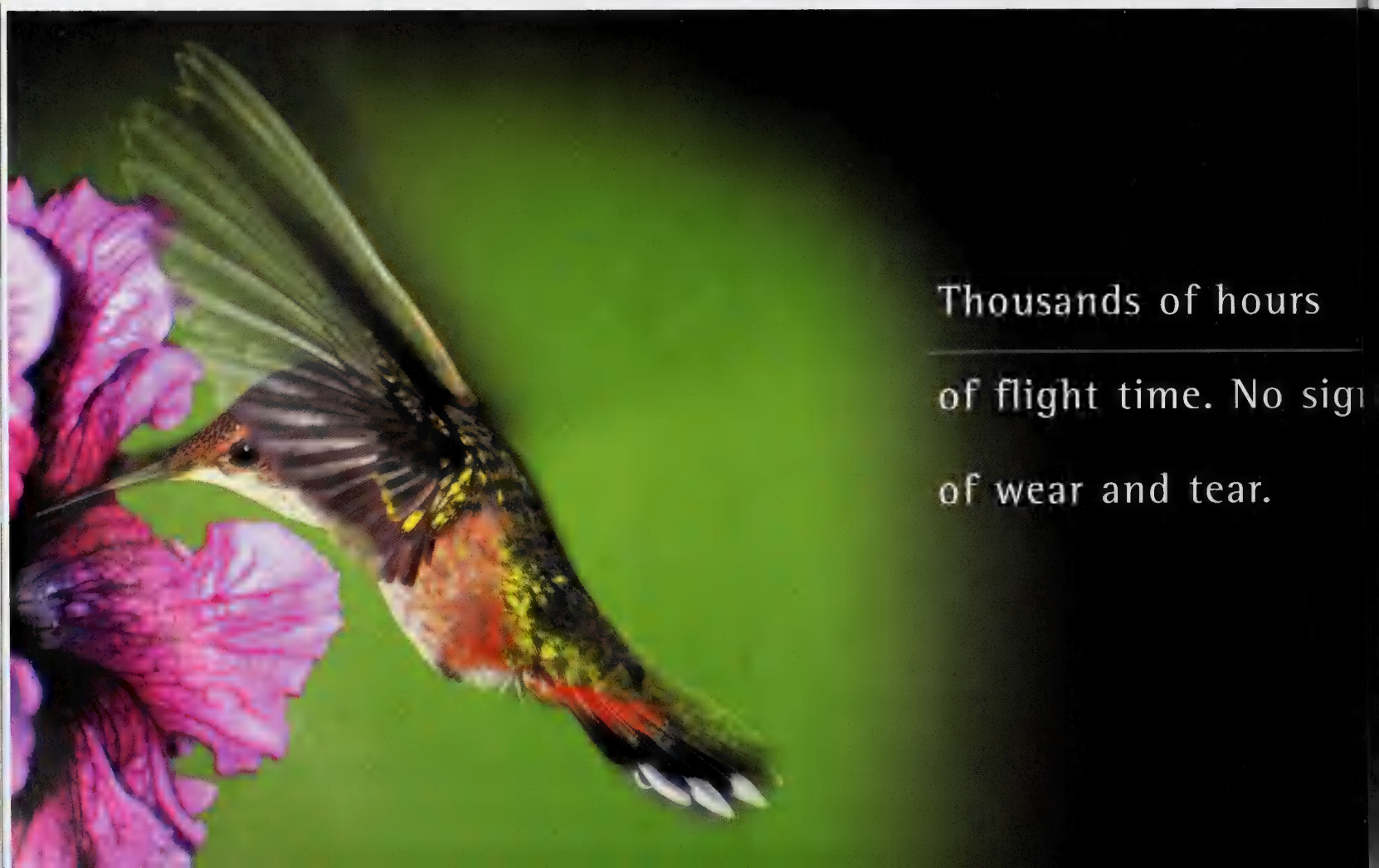
Exposed aggregates used in conjunction with Chromix Admixtures provide a colorful, slip-resistant surface for public areas, walkways, and seafront promenades. Varying the size of indigenous aggregates can provide design interest along with the cost-effectiveness of cast-in-place architectural concrete. 800/800-9900. L. M. Scofield Compan,. Los Angeles. **CIRCLE 241**

▼ Barely there

Visplay Area, from Marlite, is the third product to be offered through the Marlite/Visplay partnership. Visplay Area features a range of sockets and components, including adjustable uprights, and merchandising accessories systems that can be easily mounted to wood or glass and configured to create displays for a wide variety of retail offerings. Its modern, clean, Minimalist design has few visible structural elements, ensuring that the assembly doesn't overpower the merchandise. Available in the same finishes as other Visplay and Marlite assemblies, Area components can be used to create center-floor displays, platforms, risers, and tables, complemented by Visplay Mono and Stripes as vertical systems, or alone with conventional display systems. Marlite offers preassembly and shipping to job sites to decrease installation time. 330/343-6621. Marlite, Dover, Ohio. **CIRCLE 242**



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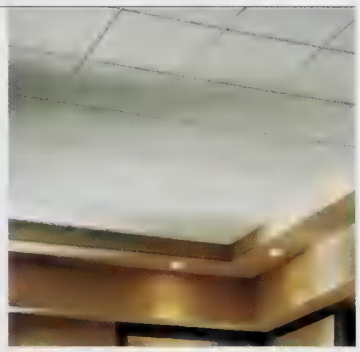


▲ Vinyl rainbow

Azrock introduces 26 new colors to its commercial vinyl flooring line. The new colors are part of their Standard Cortina Collection. The addition of the new colors now makes a total of 60 colors available for the Vinyl Composition Tile (VCT). The tile offers a solution for high-traffic areas and has been tested for air-quality emissions. The standard Cortina Collection has received certification by the GreenGuard Registry. 713/802-1008. Domco Tarkett Commercial, Houston. **CIRCLE 243**

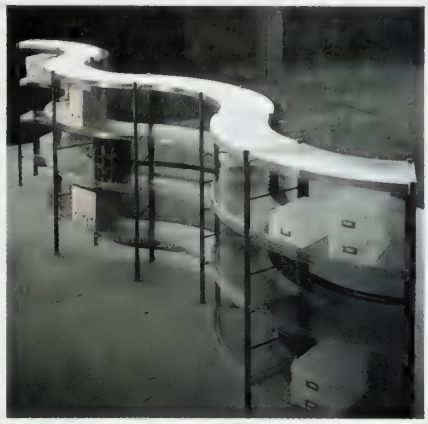
► Not too hot

Dune fine-textured acoustical ceiling is now available in Fire Guard panels. The panels are specially formulated and manufactured to provide enhanced resistance to flame spread, smoke generation, and/or structural failure. They are offered in two sizes and three edge options. 877/276-7876. Armstrong World Industries, Lancaster, Pa. **CIRCLE 244**



► Twister a-coming

Quattrocchio, the Italian exhibition systems manufacturer, is introducing Twister shelving at the International Contemporary Furniture Fair 2002, held in New York City this month. The system is assembled from steel "ladders" and injected acrylic shelves in translucent colors. New panel options include super-size perforations in squares and circles, along with sleek steel mesh. A pole support now offers designers the ability to make lower-cost enclosures with Zero panels, utilizing a new universal node connector. An integral showcase module allows for cost-effective display cases within the Zero system. 401/724-4470. Zero U.S., Lincoln, R.I. **CIRCLE 245**





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Product Briefs



▲ For the king's throne

The Royal Flushometer meter regulates the amount of water used during one flush, setting the standard for low-consumption toilets. The Royal accurately delivers water from 15 to 100 psi, offering water economy, low maintenance cost, and a long life. 800/9-VALVE-9. Sloan, Franklin Park, Ill. **CIRCLE 246**

▼ Fire protective insulation

FlameChek duct insulation is a high-temperature insulation blanket for use in commercial and industrial fire-protection applications. FlameChek meets industry requirements and is specifically designed to provide one- to two-hour fire ratings around ducts. 800/723-4866. CertainTeed, Valley Forge, Pa. **CIRCLE 247**





▲ Looking for the complete package

The new abuse-resistant wood doors from Total Door Systems are designed to stand in as an alternative to heavy steel doors in hospitals, classrooms, offices, or anywhere a steel door may be less desirable. The low-profile electromagnetic door fasteners (above) can be used anywhere, even with other sensors and detectors located nearby. Concealed door closers (top) become invisible when the door is closed. They are ADA compliant through the full swing. 248/335-7380. Total Door Systems, Pontiac, Mich. **CIRCLE 248**

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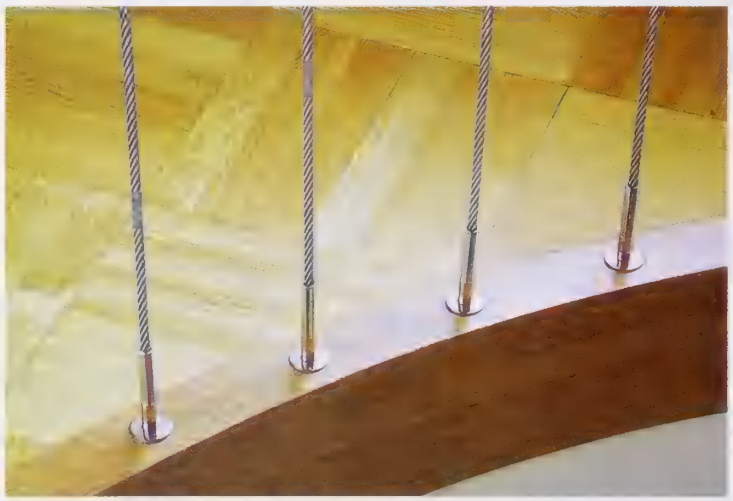
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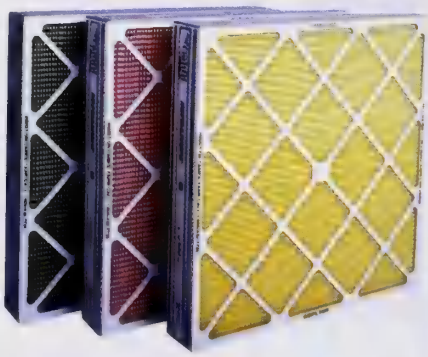
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Product Briefs



▲ Hanging tough

DecorCable Innovations announces the availability of their newly expanded JAKOB Inox Line of Vertical Cable Railings Systems. The new system of cables is designed to meet all building codes, allowing architects to incorporate the look of stainless-steel cables in a way that was not available before. The system offers preassembled components in lengths ranging from 20" to 47", with a choice of 12 mounting options. The line includes steel rods and wires suitable for structural, residential, and retail applications. 800/444-6271. DecorCable Innovations, Chicago. **CIRCLE 249**



▲ Breathe easier

Camfil introduces Ultrasolve air filter, a 4"-deep air-filtration system ideal for commercial, institutional, medical/healthcare, food-processing, electronics, and other indoor facilities where air quality is important. Using a polypropylene medium with high strength and low resistance to airflow, the filter is appropriate for high-humidity situations. The 4"-deep filter helps save valuable air-handler-component and inventory space, and its low-pressure drop performance (40 percent lower than comparable filters) reduces energy consumption. 973/616-7300. Camfil Farr, Riverdale, N.J. **CIRCLE 250**

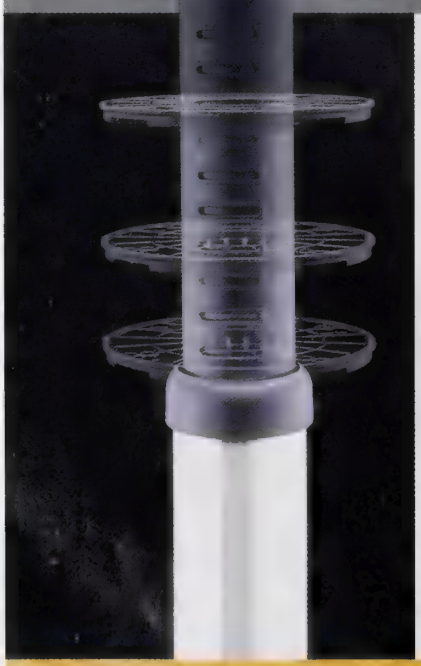
► Hot concrete

USG introduces its new Levelrock brand of floor underlayment RH (Radiant Heat). The poured gypsum concrete product is formulated to deliver long-term strength and heat-transfer performance. It is suitable for use with hydronic and electrical systems. 800/487-4431. USG, Chicago. **CIRCLE 251**



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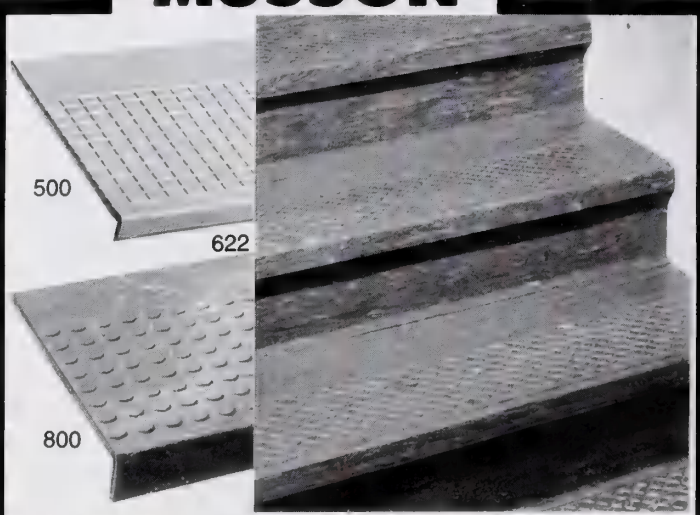
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Product Literature

3-D ceiling system brochure

A new 16-page brochure from Armstrong describes the company's Serpentina 3-Dimensional Ceiling System. Serpentina consists of curved and straight main beams, straight cross tees, curved and straight preengineered perimeter trim, and flexible infill panels. A CD containing installation photos, CAD files of all system components, and guide specifications is included. 877/ARMSTRONG. Armstrong World Industries, Lancaster, Pa. **CIRCLE 252**

SFPA annual report

The Southern Forest Products Association (SFPA) has just published the 2001 edition of its annual report, titled *Competing for the Future*. The 16-page report highlights SFPA's accomplishments last year; includes an overview of last year's marketing, government affairs, and expo activities; and gives a preview of what the industry faces in 2002. 504/443-4464. Southern Forest Products Association, Kenner, La. **CIRCLE 253**

Stylish seating brochure

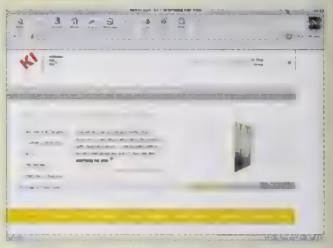
Stylex offers a new 8-page brochure of the company's Bounce line of contemporary upholstered stack seating. Descriptive information, product specifications, and ordering information are provided. 800/257-5742. Stylex, Delanco, N.J. **CIRCLE 254**

Safety products catalog

Bilco's 2002 Commercial Products Catalog includes information and specifications on the company's complete line of roof scuttles; automatic fire vents; floor, vault, and sidewalk doors; and LadderUP safety posts. 203/934-6868. The Bilco Company, New Haven. **CIRCLE 255**

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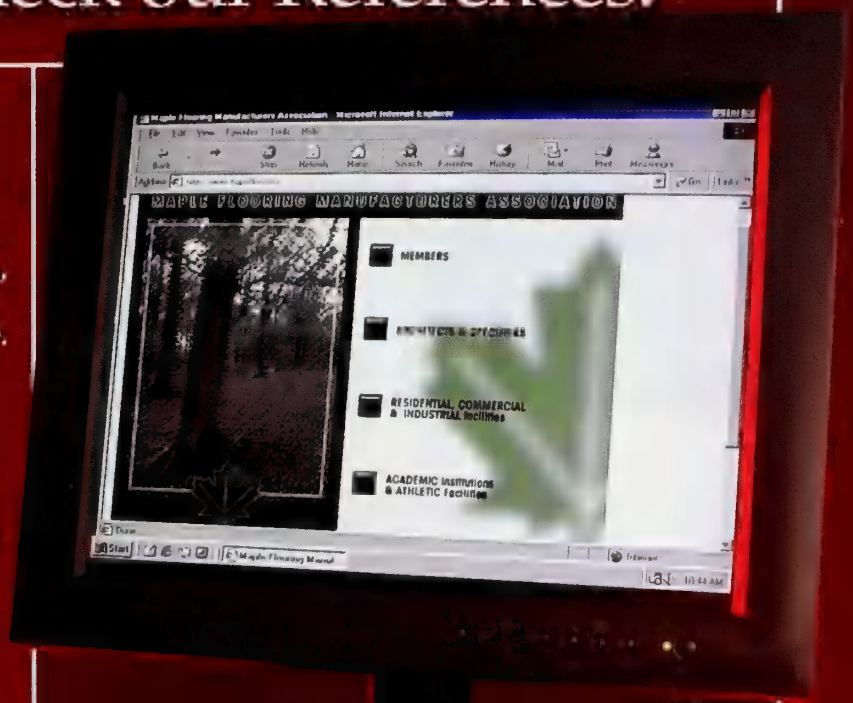


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Product Literature

Commercial downlighting

Lithonia Lighting introduces its commercial downlighting line in its new product literature. The line is a complete package of products in 8", 6", 5", and 4" apertures utilizing compact fluorescent, incandescent, low-voltage, and HID light sources. 404/853-1400. Acuity Brands, Atlanta. **CIRCLE 256**

Energy-efficient lighting

Stingray Lighting offers a comprehensive new product and applications binder for the company's patented line of energy-efficient luminaires. The Stingray binder covers the full line of metal halide and high-pressure sodium "high bay" and "low bay" interior and outdoor commercial lighting fixtures. Article reprints and technical data sheets detail how use of these fixtures cuts electrical consumption for lighting by 40 to 60 percent, compared to standard fixtures of a similar nature, while matching or increasing the amount of light at the work or pedestrian levels. 760/871-3000. Stingray Lighting, Escondido, Calif. **CIRCLE 257**

Textile duct brochure

KE Fibertec has released a new brochure, titled *KE-Trevira CS*, that describes the material used in fabricating the company's textile ducts. The full-color brochure discusses such topics as fire regulations, air permeability, dust-holding capacity, washing and maintenance, and available colors. KE Fibertec claims to be the only textile duct manufacturer that weaves its own fabric, giving the company the ability to control critical weaving processes that ensure compliance with international standards, homogenous permeability, maximum surface area and duct-holding capacity, minimum shrinkage, resistance to microorganisms, and durability. 877/229-0695. KE Fibertec North America, Oro Valley, Ariz. **CIRCLE 258**

Ready-to-paint door line

Simpson Door Company introduces a new brochure featuring Redi-Prime Doors, a collection of ready-to-paint interior-panel, French, and matching bifold doors. Redi-Prime is one of four door lines that make up Simpson's Primed Package, a comprehensive offering of primed doors for both exterior and interior applications. The free brochure presents a complete catalog of standard designs as well as product specifications. 800/952-4057. Simpson Door Company, McCleary, Wash. **CIRCLE 259**









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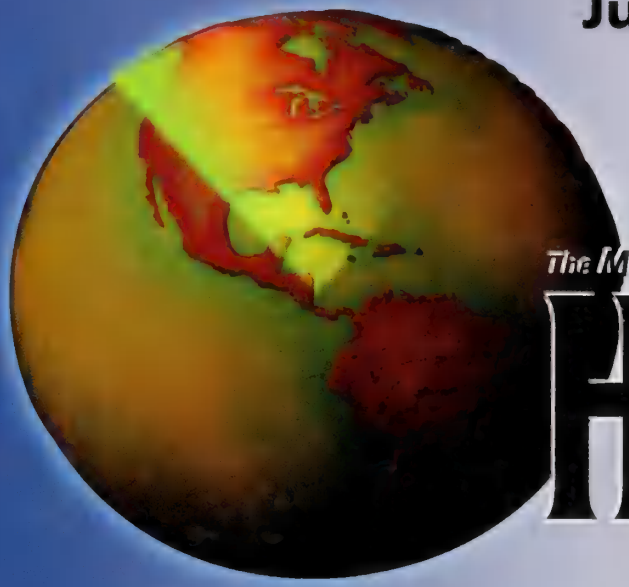
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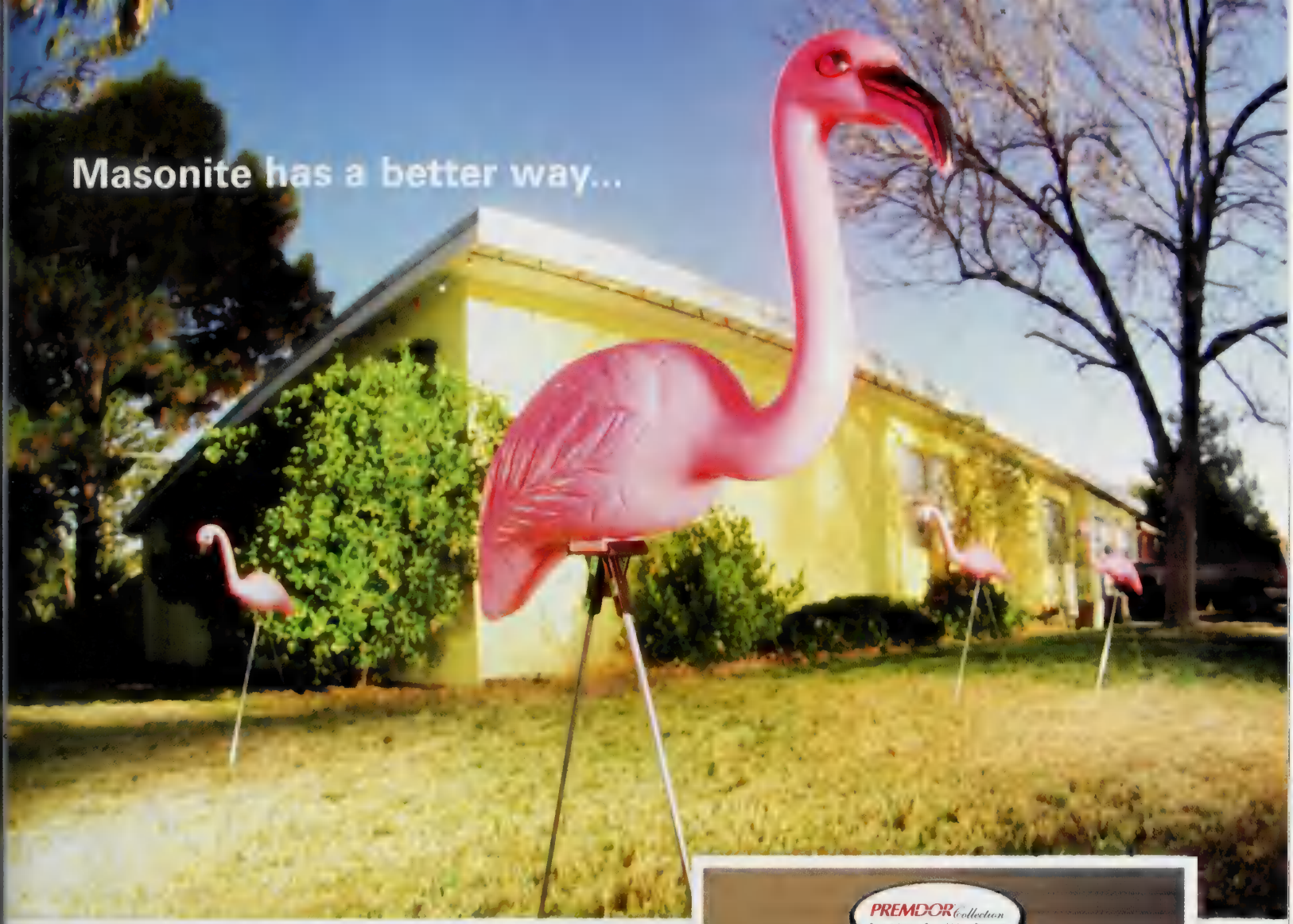
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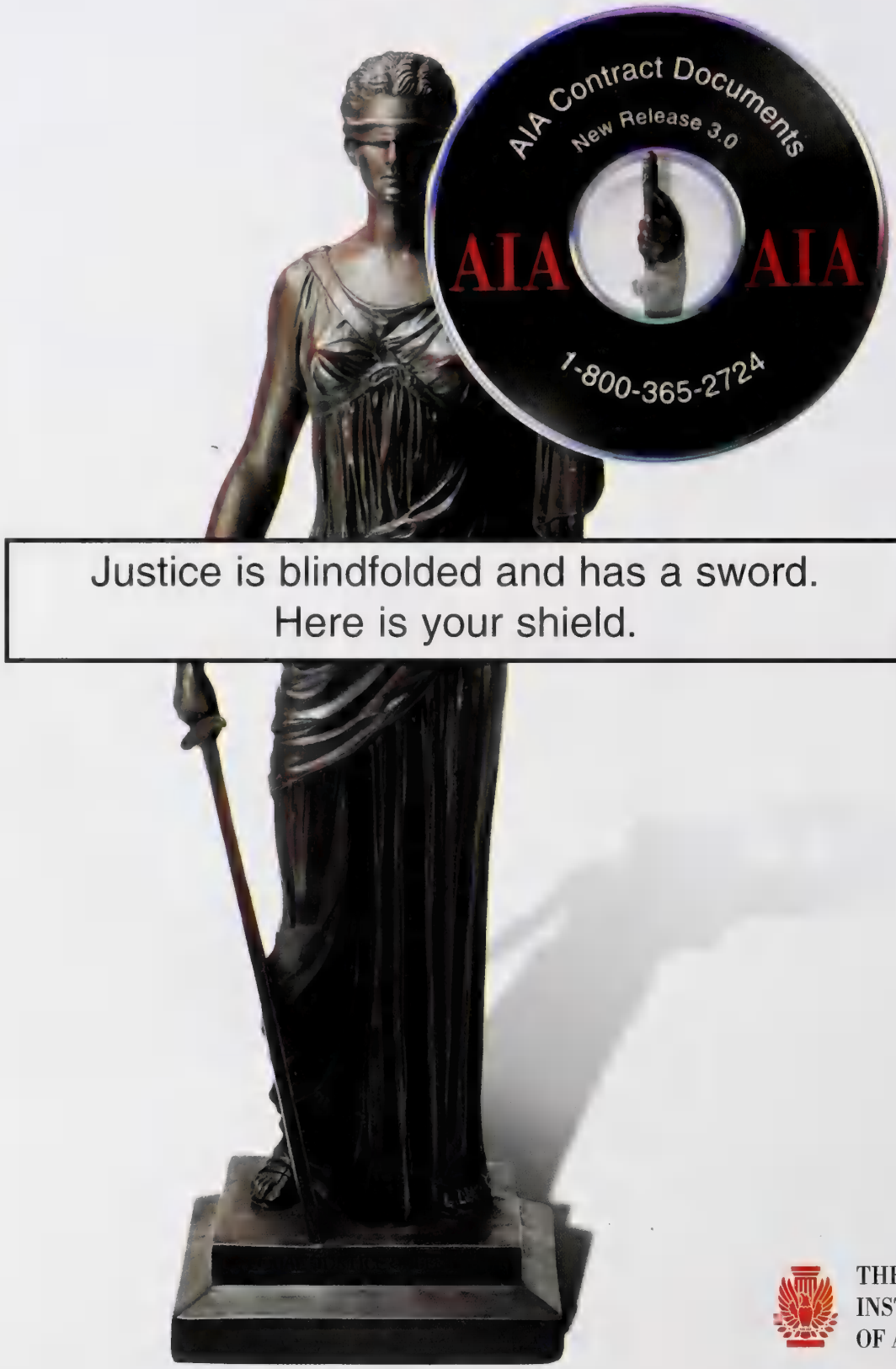
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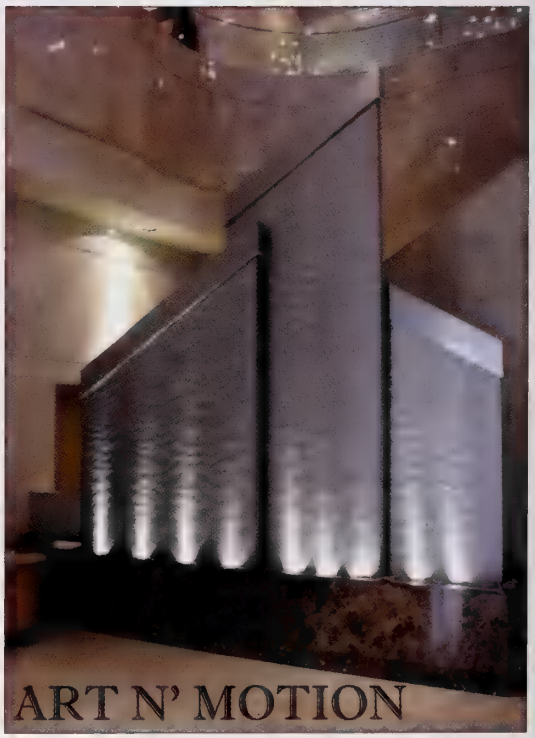
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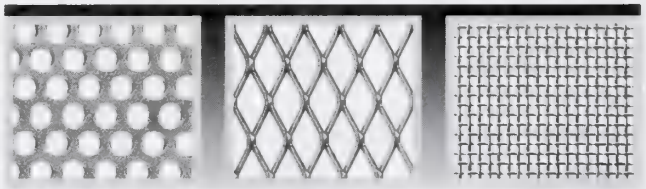
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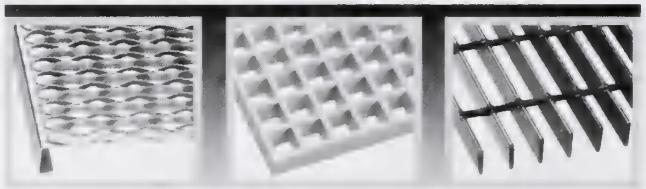
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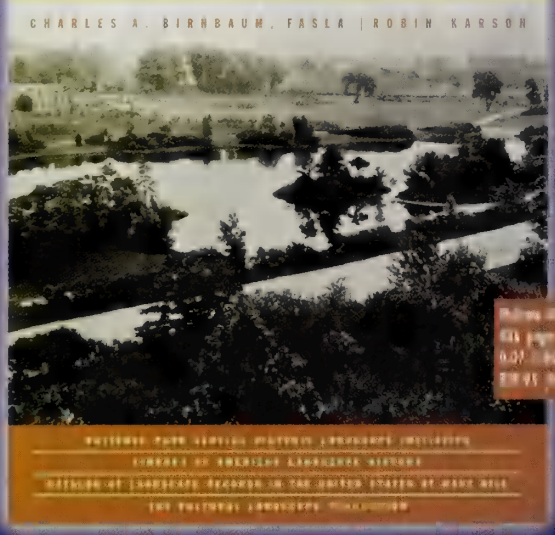
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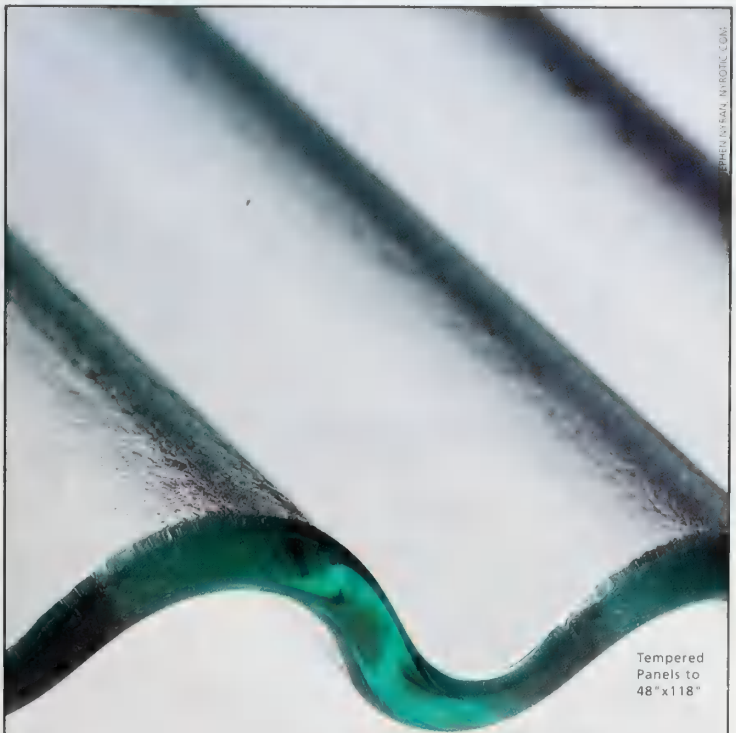
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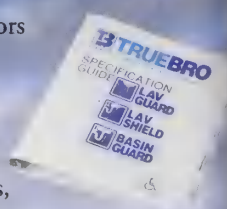
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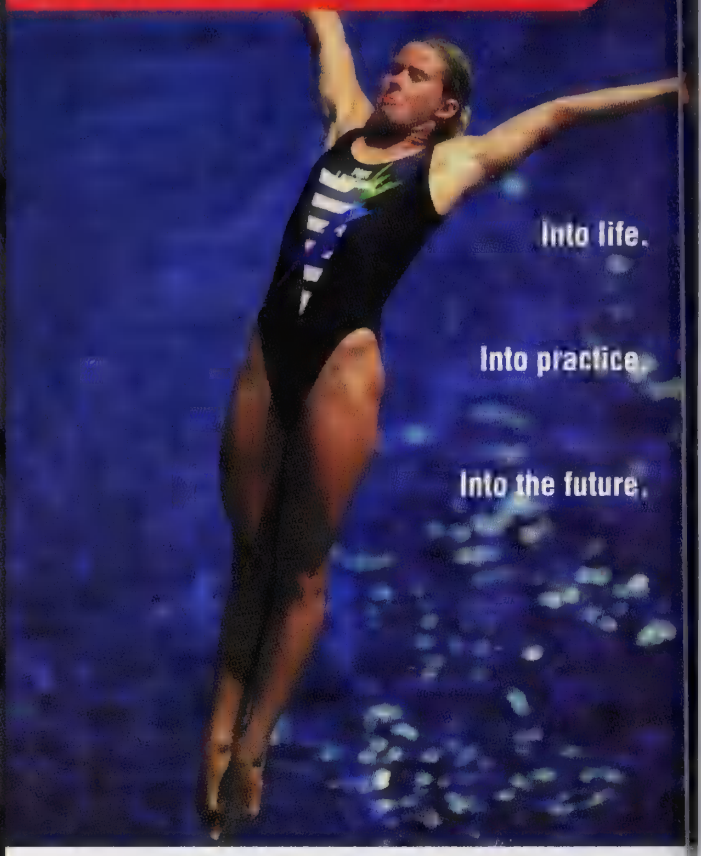
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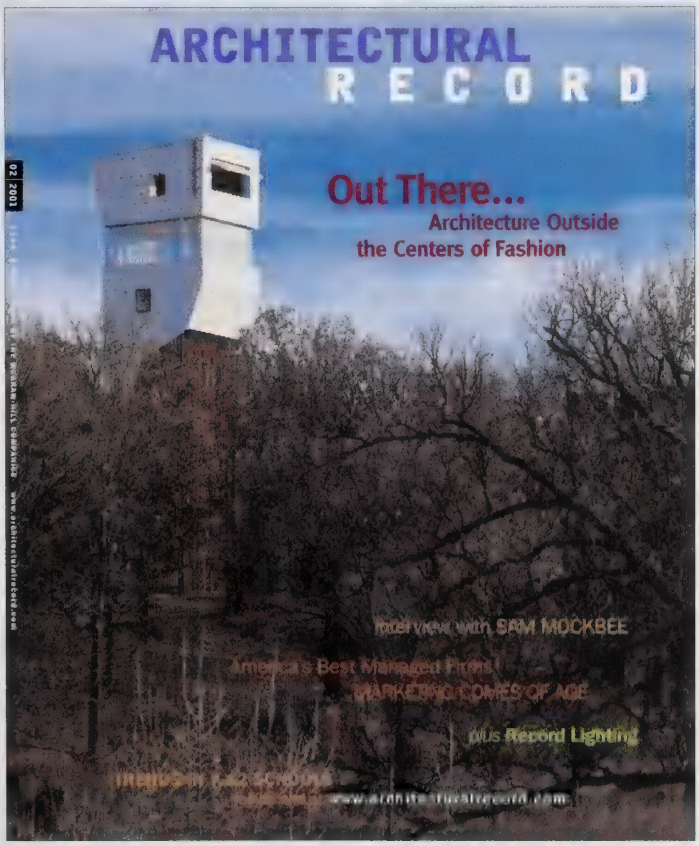
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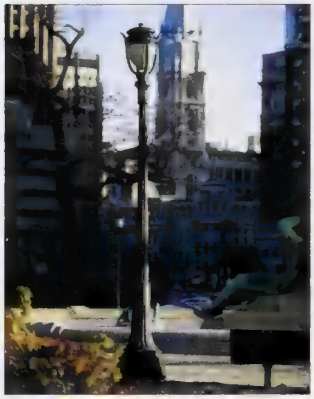
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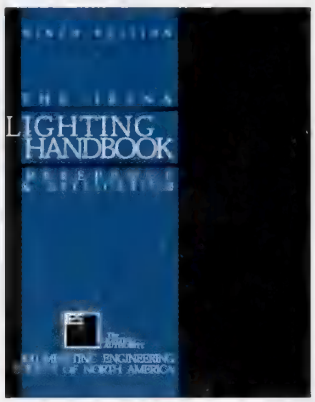


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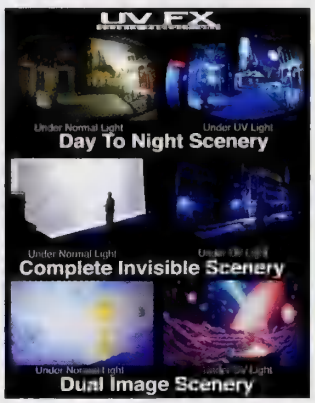


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Liberty Art Deco Pendant



The Liberty Art Deco pendant. This contemporary fixture, historically used in commercial and public places, also lends itself to residential installations. It's one of over 500 lighting and house parts available from Rejuvenation Inc. To request a free catalogue or specifier's binder, call 877-745-1900 or visit rejuvenation.com.

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Lighting Fixtures



Times Square Lighting's condensed catalog contains our complete line of line and low voltage specification grade lighting fixtures. Numerous mounting options as well as accessories for our fixtures are available. Times Square Lighting, Rte. 9W, Stony Point, NY 10980, 914-947-3034.

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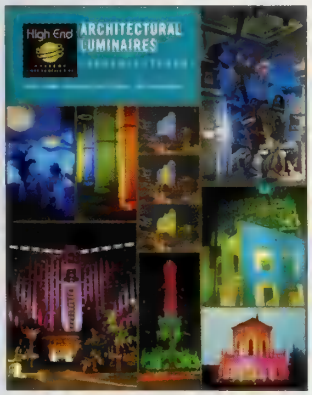


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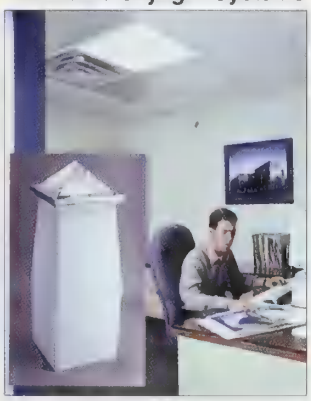


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Solar Megaphone™ From Naturalite Skylight Systems

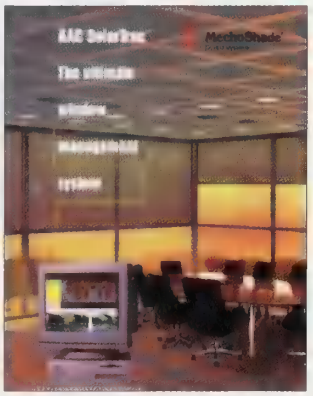


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AAC SolarTrac™ Window Management System



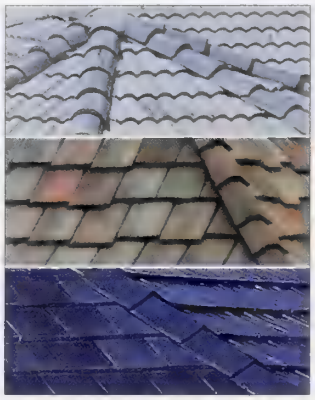
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Tile Roofs: Variety & Style That Lasts a Lifetime

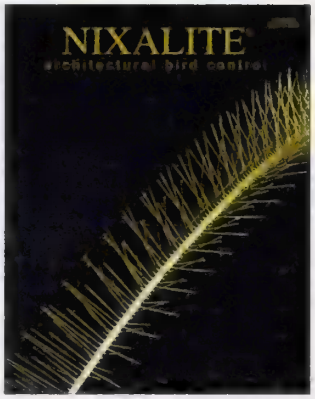


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Architectural Bird Control

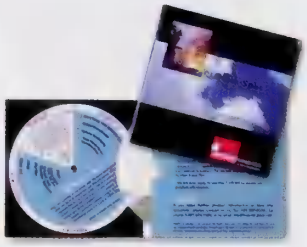


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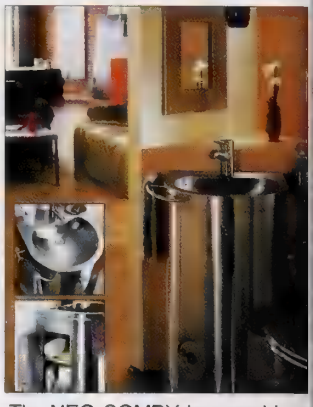


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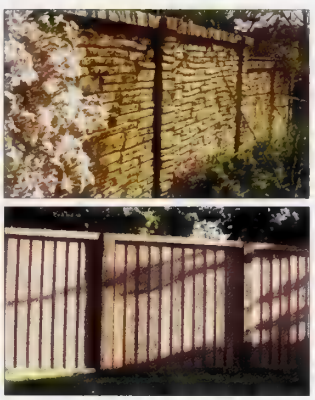


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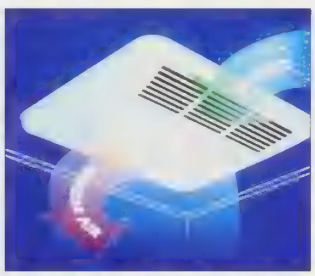


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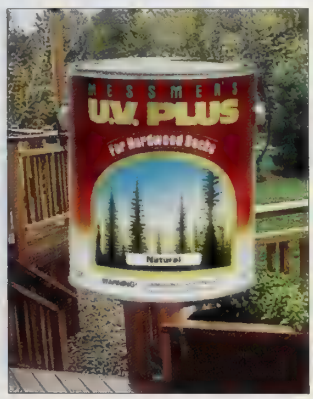


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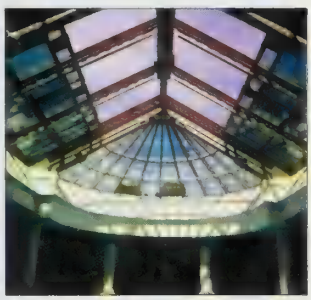


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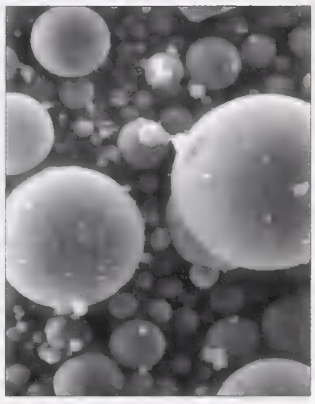
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Structural Curbs for Proper Support

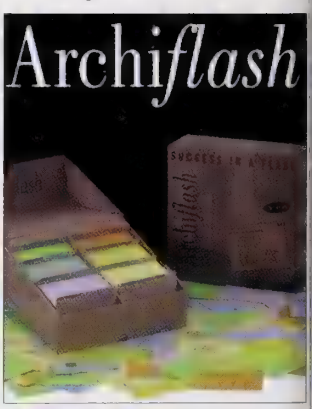


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The Garland Company, Inc. www.garlandco.com

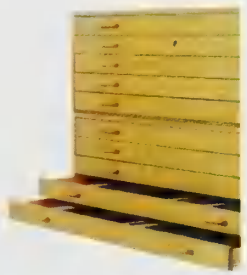


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The A-Frame

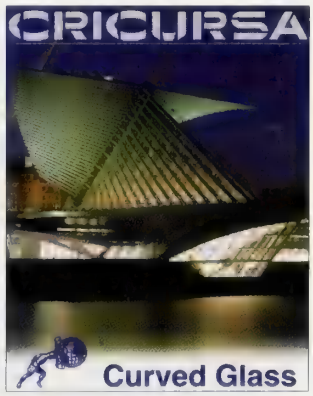


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IAC's Noise-Lock® Doors

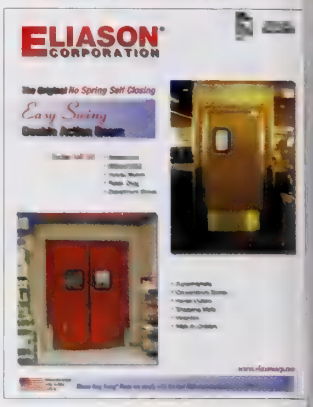


IAC acoustic door systems have the industry's highest STC ratings. Noise-Lock® doors are fire-rated and available in a variety of finishes. As fully assembled systems, IAC doors are factory guaranteed to specified acoustic performance. Available as bi- and tri-fold and with vision glass. Applications: home theatres, offices, studios, control rooms, conference halls, and auditoria. (718) 931-8000 / email: info@industrialacoustics.com

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Eliason, the original & only manufacturer of Easy Swing® Doors, has announced the availability of their new 2001 Price Spec catalog. Doors are color illustrated with complete specifications & prices. Available in a variety of sizes, styles & decor options. Doors are sold direct & the price catalog is sent no charge. Eliason Corporation, P.O. Box 2128, Kalamazoo, MI 49003. 800.828.3655 Fax: 800.828.3577 Email: doors@eliasoncorp.com www.eliasoncorp.com

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Gage Corporation

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Architectural Concrete Flooring & Paving

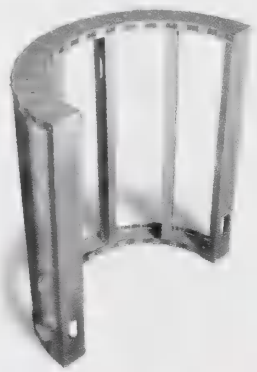


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Beautiful Curves Just Around the Bend

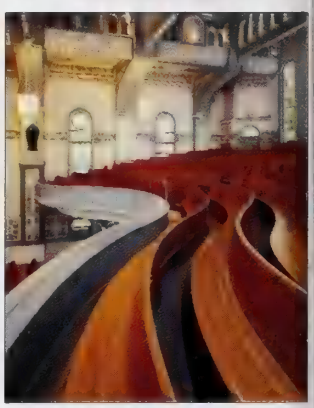


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Pflow Lifts Safely Move Materials Between Levels

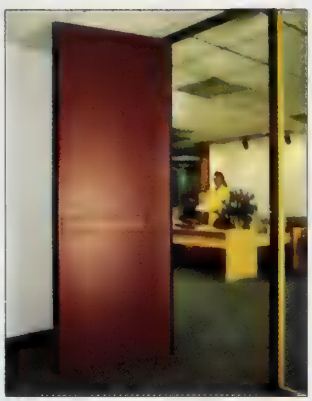


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FAAC Introduces New Economy Operator...

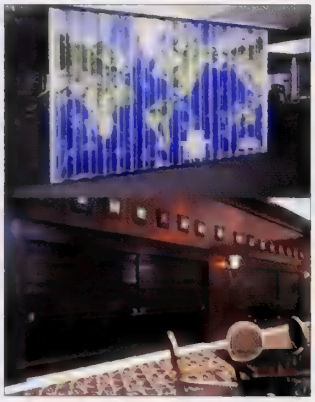


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Fleming Door Products

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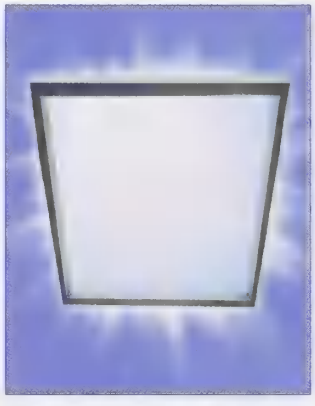


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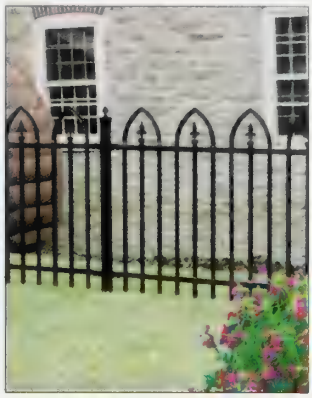


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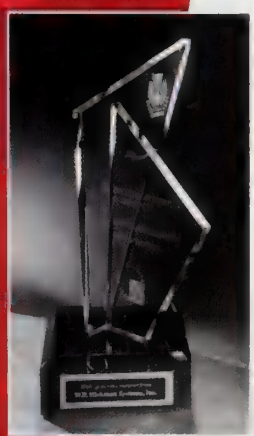


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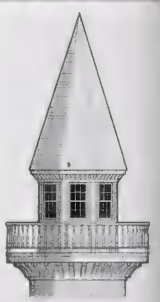
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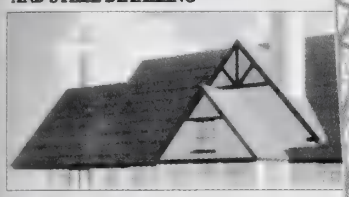
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Marion O. Sandler: Banking on design

Interviewed by Therese Bissell

Architects tend to describe client Marion O. Sandler, the C.E.O., board chairman, and cofounder of Golden West Financial Corporation and World Savings—the nation's second-largest savings institution—as, by turns, their toughest critic and greatest champion. Sandler's patronage of retail architecture is singular. Over three decades, World Savings has commissioned more individual firms across the U.S. than any other commercial entity. It is prime evidence of Sandler's eye that she hired Frank Gehry for the North Hollywood branch in 1979, before anyone could have known how cool that would be. It is evidence of her soul that famous names are not as important to her as good design.

Q: *How did architecture come to figure so prominently in World Savings' new banks development program?* When we started building in the early 1970s, there was no industry prototype for design. The facilities were all alike and all terrible: Bank of America, American Savings, Wells Fargo. People made fun of Home Savings' buildings, saying they could double as mausoleums. I have never felt the need to be original just for the sake of originality. If I see my competition doing something well, I'll copy them and try to do it better. Facilities then were utilitarian, however, and not particularly functional. We had a different point of view and set out looking for architects who could deliver for us.

What was your relationship with William Turnbull? Skidmore, Owings & Merrill had done our first headquarters in Oakland and recommended Bill, a Skidmore alum, for smaller projects. With Bill, there was no bag of tricks: He was all about defining a problem and noodling a solution. We eventually retained him as our consulting architect because I found it easier to communicate with architects if I did it through someone they respected. He said he was our "design conscience," and he had substantial influence on vetting and hiring, and on the buildings themselves.

Your dialogue with architects is ongoing. Describe your brief to them. Our look is open, uncluttered, well lit with lots of windows. We'll take risks: Budgets are largely determined by location and customer demographics, yet I'd rather pay for innovation than marble floors. We're a retail operation with obvious dictates, such as the front door takes advantage of traffic patterns and the sign faces the street. The biggest restriction in terms of aesthetics is that we're often located in shopping centers and dependent on developer approval.

How important is it that each of your facilities is unique? You obviously save fees and time with cookie-cutter buildings, and we once considered doing a single format across the country. But our 270 buildings could really pollute the landscape if they didn't acknowledge their different communities. The thrill for me is in seeing the finished building. I've had experiences where I just about went into orbit. That wouldn't happen if each new facility were the same.

Does the financial community recognize your efforts to elevate the architecture of banking facilities? No. They couldn't care less. But I'm not interested in the financial community—I'm interested in their customers. You won't find another C.E.O. of a financial institution involved in building design. If they're invested in architecture, it's that of a high-rise monument—not a branch office or regional headquarters. Their focus is quite separate from mine.

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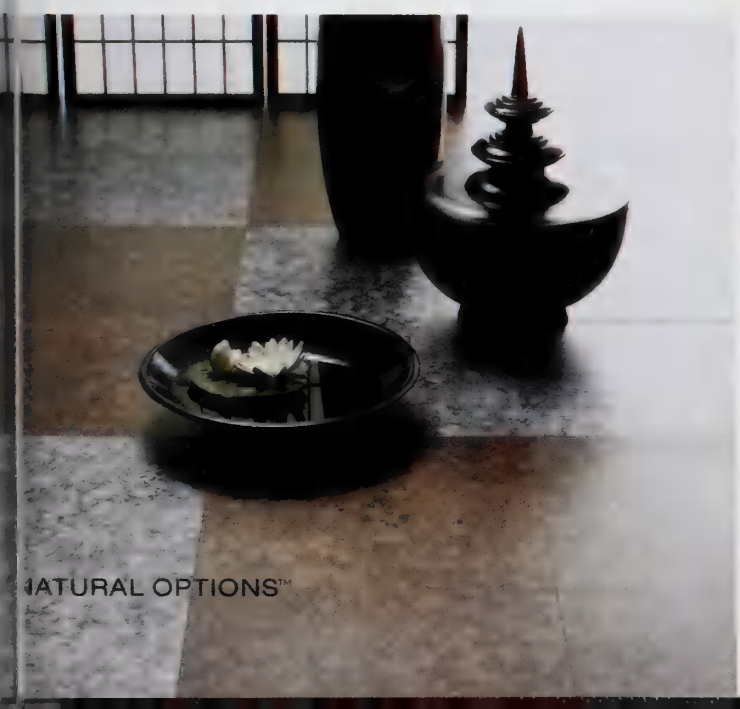
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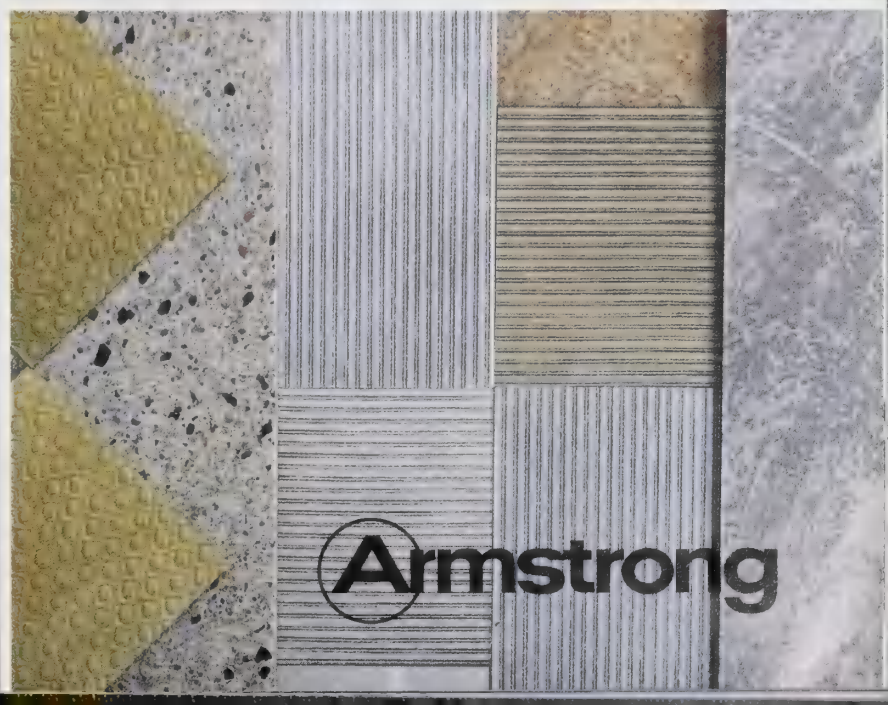


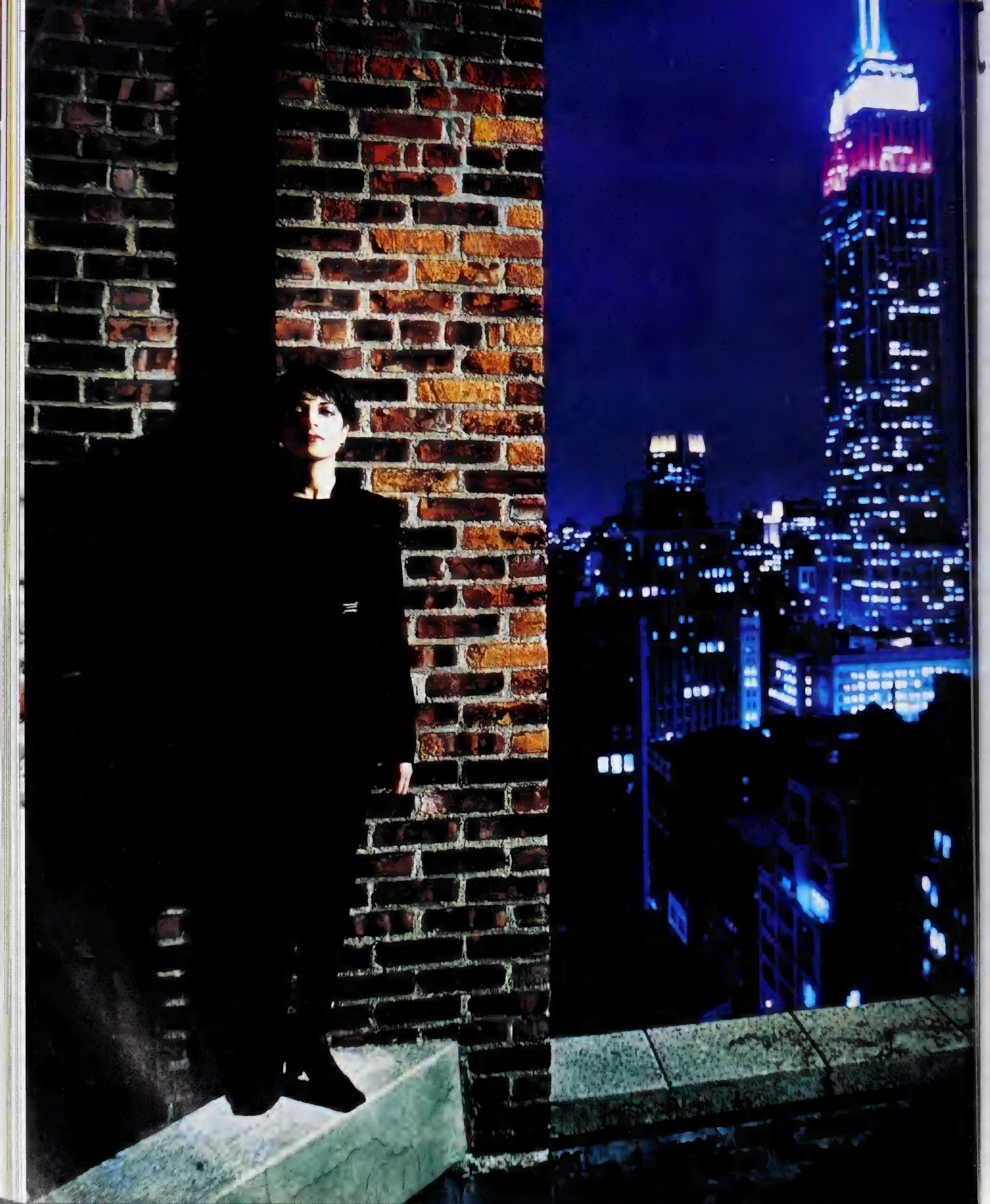


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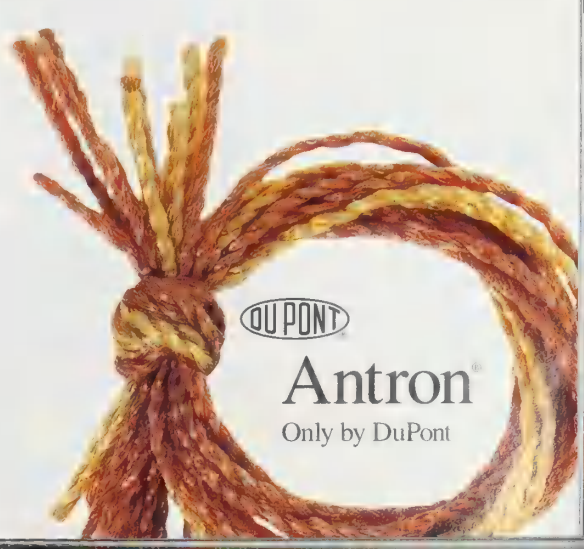
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it's seeing light in the shadows.

Shashi Caan, Associate Partner, Skidmore, Owings & Merrill
On light, skyscrapers and sustainability:

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EDITORIAL INTERN	Christina Rogers
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RESEARCH	Ellen Halfond, *ellen_halfond@mcgraw-hill.com*
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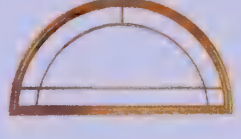
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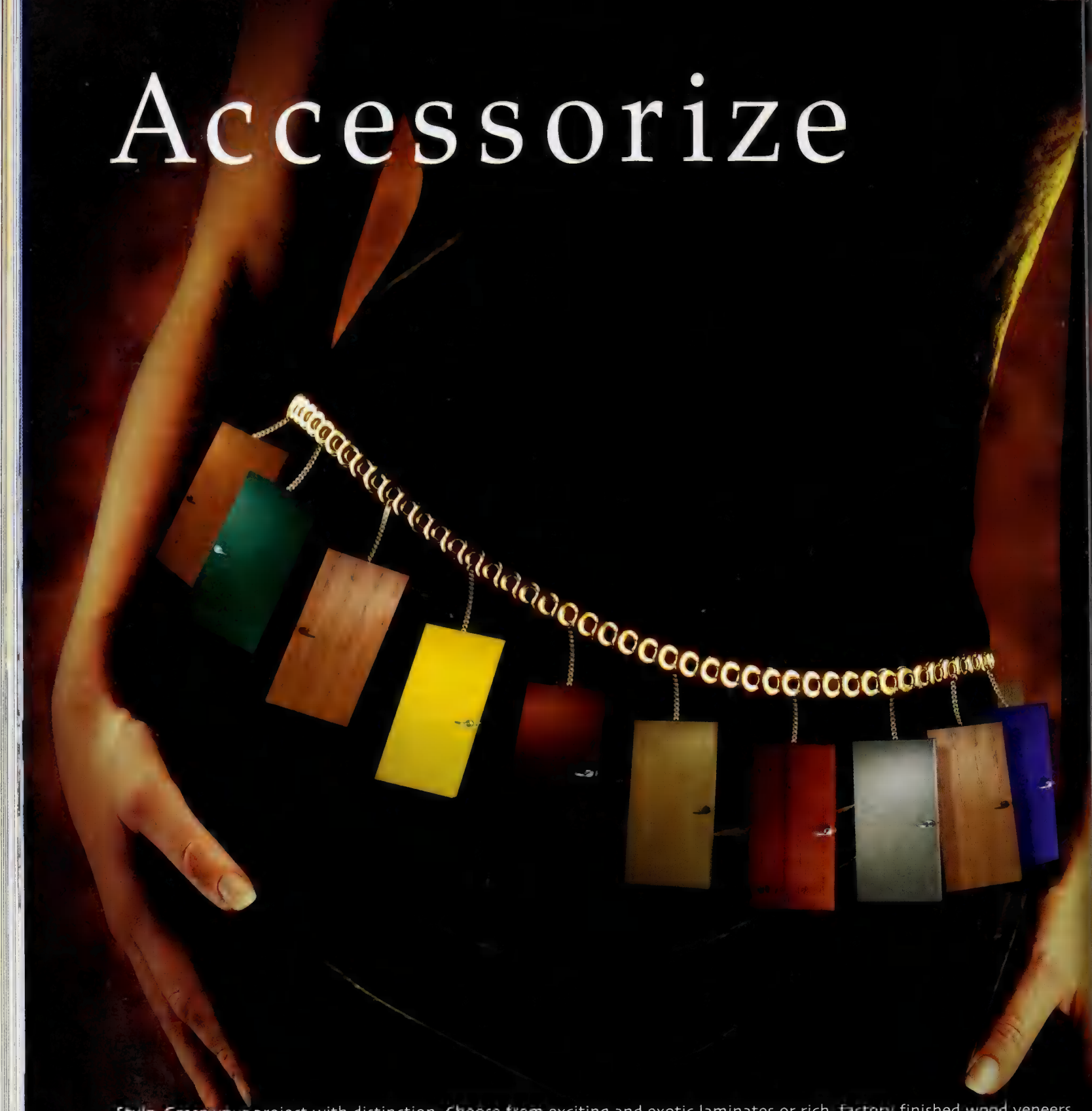
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On the Cover: *The Gallery of Horyuji Treasures. Photograph by Shinkenchiku Sha*
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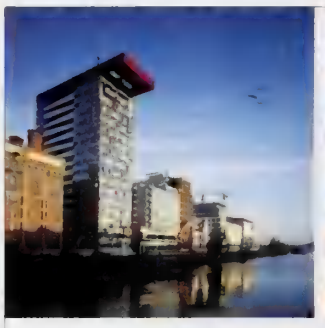
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This month:

- **Jim Cutler, FAIA** sets out his case for "tangible reality" in architecture with his heartfelt essay.
- **Louis Sullivan**, the father of the skyscraper, writes about the Chicago Tribune Competition in an article from the February, 1923 issue of *Record*.

Plus, **other essays, interviews and reviews** from the previous issues of *In the Cause of Architecture*.

Check back every Friday for new content.

BTS: Offices



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Check out June's **Expanded Building Types Study** section showcasing a Web-only portfolio of offices in addition to the projects featured in the magazine. From Holland to Ohio, get project descriptions, plans, specs, photos, and links to people and products involved.

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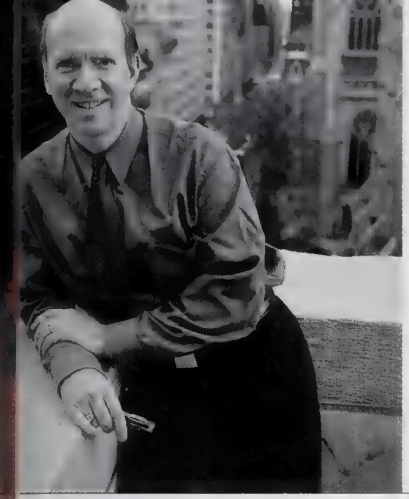
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Is Idealism Dead?

Editorial

By Robert Ivy, FAIA

If you didn't know better, to talk to some architects you might think that idealism had vanished from the architectural scene. After years of wide-eyed innocence, many of us have become savvy to the markets and worldly-wise. Perhaps too shrewd. Along the way, some design professionals have even dropped the mention of architecture from their names and marketing materials, recasting themselves as branding experts who happen to build. While diversification, even perceived financial necessity, might dictate such an identity shift, we must wonder if we have entered a tougher new architectural era.

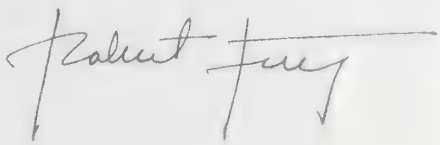
Architect Richard Swett, FAIA, the former U.S. ambassador to Denmark and a former member of Congress, thinks otherwise. Swett has used his own skills, including the ability to program complex information, to synthesize diverse views, and to develop plans, as managerial tools for organizations like the U.S. State Department. He believes that other architects should use their talents to improve their communities. This spring, he participated in a revitalized Leadership Institute, formed by a partnership of the AIA and Georgetown University in Washington, D.C. This small group of architect/leaders from across the country found that leadership traits can be learned and transmitted to others, shared inside and outside firms.

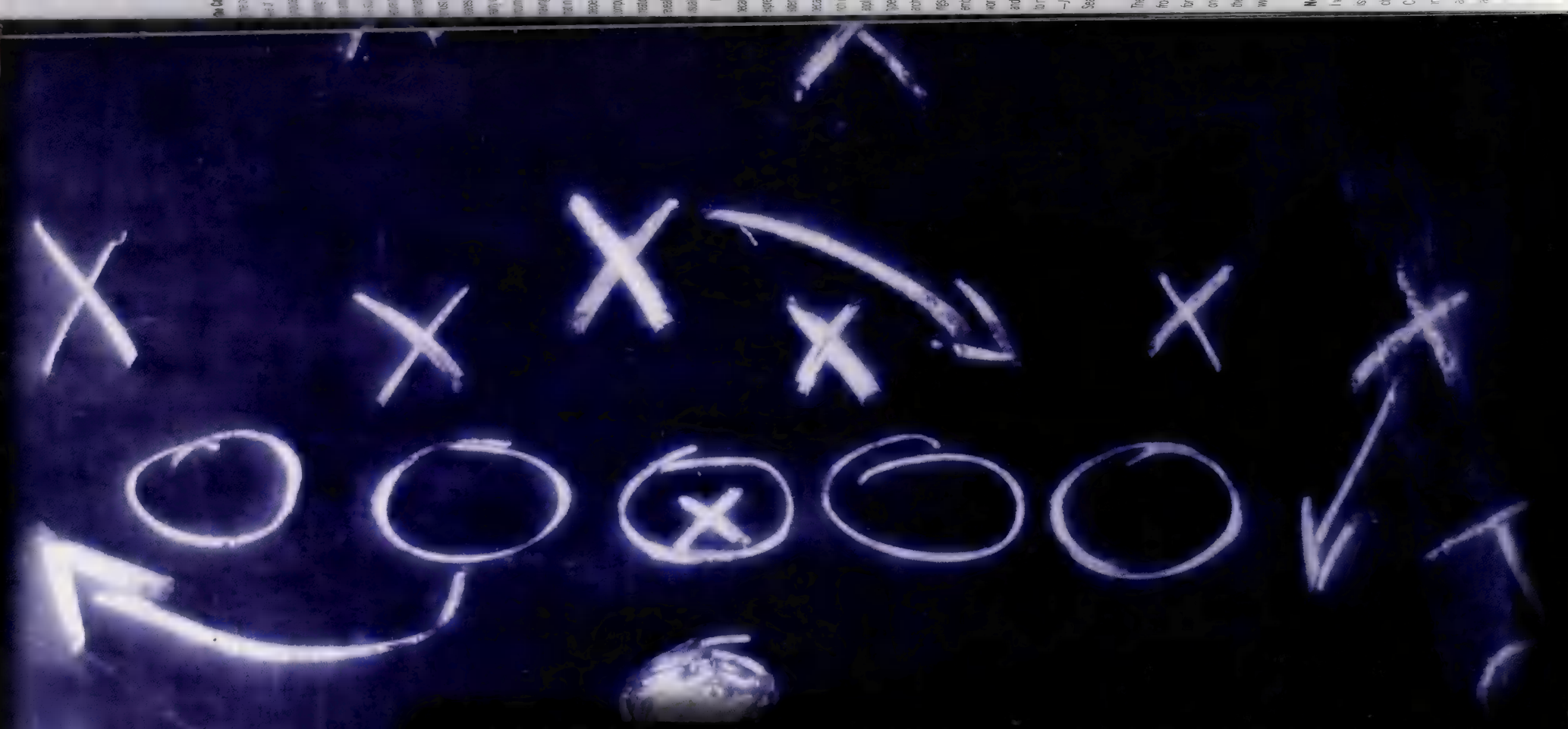
Like Ambassador Swett, we architects, by nature and by training—almost by definition—listen carefully, and we care. Despite adversity or stringent markets, our work begins in hope and is sustained by optimism: The long life of a project, translating ideals into concrete reality, may require years of support; architecture demands it. The personality of caring, however, varies from generation to generation. The generation that reads Nylon *today shades its hopes in cooler terms than the sixties generation fed by Joan Baez's plaintive arias for social responsibility and change. The X and Y crowd have found their own causes and advertise them on the Web.*

For anyone with doubts, meet contemporary leader and 28-year-old architect, Cameron Sinclair. In 1999, this architect founded Architecture for Humanity, a "volunteer nonprofit organization set up to promote architectural and design solutions to global, social, and humanitarian crises." In a world fraught with problems, Sinclair designs his way toward change. Architecture for Humanity's first venture, transition housing for refugees returning to Kosovo, launched a competition that attracted over 250 entries from 30 countries, resulting in an international exhibition that toured in 4 countries and raised over $80,000 for charity. Two of the program's winning proposals have already been constructed; two more are underway.

Leaders do not stand still. Currently, Sinclair's group is sponsoring a competition for a mobile HIV/AIDS clinic for Africa. Because of the magnitude of the pandemic (in sub-Saharan Africa, 6,000 die each day; 14,000 more are infected) and the need for mobile facilities, Architecture for Humanity is attracting international attention and support and encouraging plans to build transportable clinics for education, prevention, and treatment. By advertising the program on the Web at architectureforhumanity.org, Sinclair hopes to attract entrants by the November 1, 2002, deadline, allowing the jury to announce its selection by World Aids Day, December 1.

Architecture for Humanity represents the finest of the new breed of architectural leadership, employing architectural skills and directing them for the larger good. Active publicity has resulted in support for the organization from established leaders in the profession (prominent names serve on the organization's board) and from the public. Committed, unapologetically architectural in name and mission, Architecture for Humanity stands up for people in need. It demonstrates a quality of leadership, providing renewed appreciation for architecture and winning respect and trust. Who ever said idealism was dead?





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Letters

"The Case for Tangible Reality"
On the cover of the December 2001 issue of RECORD was a beautiful computer-generated drawing of a building that floated with no context and almost no sense of materiality. This stunning drawing led me to conjecture that our profession's current fascination with the computer's almost magical ability to manipulate spaces may have blinded us to the reality of the physical and emotional circumstances that contribute to the making of architecture. It is my belief that in the long run we will find a deeper and more profound use of the computer and will use it as a tool for creating designs that more thoroughly reveal and reflect the nature of our visual and emotional experiences.

I have written this letter not because I think that the views expressed are the only way to consider the making of buildings, but because it is one way; one that is rich in design opportunities, that is applicable to most of our building types and locations, and that the architects doing the everyday buildings of this world should know, if not embrace. I learned this view of the world from my teacher, Louis Kahn, and feel obligated to pass on what, to me, is still a rich and varied path.
—Jim Cutler, FAIA
Seattle, Wash.

These comments were excerpted from Jim Cutler's essay, "The Case for Tangible Reality," that appears on our Web site. Read it in the In the Cause of Architecture section at www.archrecord.com/inthecause.

Not a-mused
I was just leafing through your April issue and was brought to my feet cheering when I read the letter from Craig Purcell regarding "the silencing of the muse" [Letters, page 18] and the lack of drawing ability among the younger generation of architects. While I may be a humble mechanical engineer, I totally sympathize, and have experienced the same erosion of artistic capability and general drawing quality over the past 10 years.

CAD drawings may look really nice and consistent, but what about the quality of the information? It is my opinion that the quality of information has gone downhill in many ways, since the drawing is now produced on a 15-inch screen, and it is difficult, if not impossible, to see the "big picture" of a full-size drawing laid out in front to of you. Not to mention that the drawing now consists of colored lines input by CAD operators, who may have a good understanding of the software but don't realize they are drawing 3D material in 2D.

I firmly believe that a mandatory prerequisite to taking a CAD course should be to spend one year "on the boards" doing manual drafting in order to understand how and why drawings are created and used.

I am trying to initiate some feedback to our local technical schools that push out these keyboard punchers, to try and teach manual drafting and teach these people "what is a drawing" again.
—Geoff McDonell
Earth Tech
Burnaby, B.C.

Waiting for winning stadiums
I would tend to agree with Elizabeth Harrison Kubany [Building Types Study, May 2002, page 245] that the over-nostalgic design approach of many of this country's newer sports venues is unfortunate. In their defense, however, both Camden Yards and Coors Field—and, especially, San Francisco's Pacific Bell Park (located near my office and my home)—achieve a much better integration with their surroundings than any of the projects featured in last month's article.

The scale and articulation of the facades wrapping the new wave of "retro" ballparks echoes that of the surrounding urban fabric, and consequently these buildings feel like an intrinsic part of the cities in which they are located. Nevertheless, PacBell Park fares poorly when compared to Mario Botta's San Francisco Museum of Modern Art located four blocks away: Both use brick extensively, but whereas the former uses it in a cartoonish way, the latter uses it in a striking and contemporary manner.

It is unfortunate that no one in the architectural community has risen to the challenge of designing a stadium that embodies sound urban design principles without resorting to historicist architectural clichés. It is equally unfortunate that the more contemporary expression characterized by the four projects you feature seems to come hand in hand with a desire on the part of the architects to create object-buildings divorced from their context.
—Yann Taylor
Field Paoli Architects
San Francisco

Graves matters
The news brief "Graves gets playful in Minneapolis" [April 2002, page 41] is a sad joke. While the words describe the work for the Childrens Theater Company (CTC) as an "expansion to a 1972 white brick building by Kenzo Tange," the drawings show a free-standing building. In fact, the Tange effort was an addition to the original 1912–1914 Beaux Arts building by McKim, Mead and White (source: *A Guide to the Architecture of Minnesota*, by Gebhard and Martinson).

I would hope that any architecture student presenting an out-of-context design like this would be admonished by the jury and graded appropriately for lack of consideration for context.

The proposed project has met with local criticism and has generated a recent defensive editorial-page article in the Minneapolis *StarTribune* from the director of the theater. The public sentiment seems to be that Graves is world-class and he could do better (i.e., we've seen it before). The director's editorial essentially said, "But it has a really good floor plan."

It should come as no surprise to anyone that one of the largest contributors to the CTC is Graves's toilet-brush-producing patron Target Corporation (source: phone call to development office of the CTC, who said Target is in the highest donor group at $50,000 and above).

P.S. Even though I'm a huge Kenzo Tange fan, I think he was out sick the day his Minneapolis work was designed. His St. Mary's Cathedral and his Olympic stadiums, both in Tokyo, are fantastic.
—Charles Levin
Charles Levin Architects
Minneapolis, Minn.

Corrections
In the Neue Galerie article [May, 2002, page 222], Serge Sabarsky's name was misspelled. Also in May [Digital Architect, page 289], Branko Kolarevic's name was misspelled. In the May article about Gannett's headquarters [page 212], development manager Hines was omitted from the credits, as was curtain-wall consultant R.A. Heintges Architects. Also, Jamie Carpenter was not involved in the project as reported. In the April 2002 issue's table of contents [page 11], the author of the Beverley House story should have been listed as Thomas S. Hines. Also in April [Record Houses, page 132], photographer Nicolas Borel's name was misspelled.

Please e-mail letters to editor-in-chief Robert Ivy at rivy@mcgraw-hill.com.

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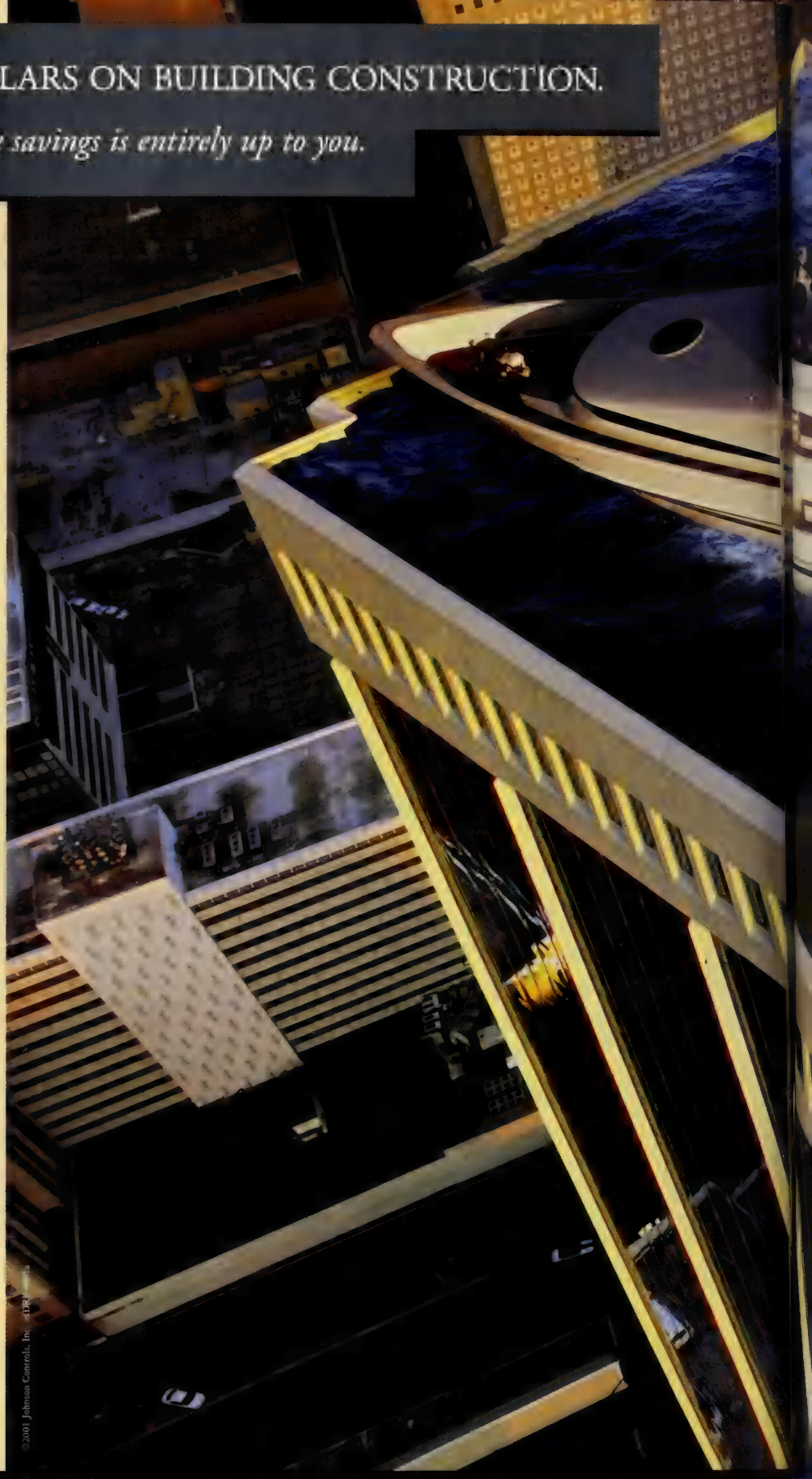
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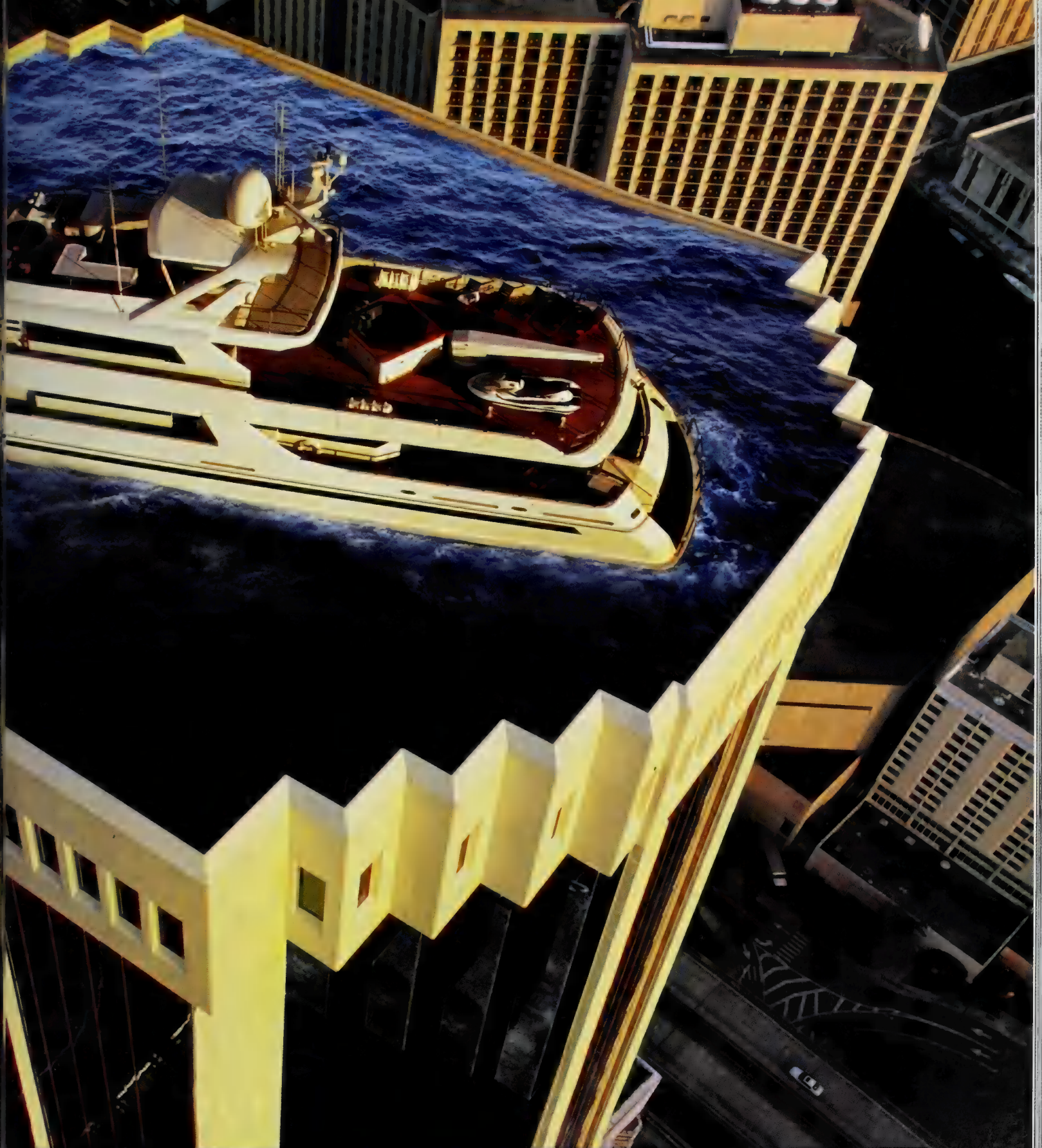
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Record News

Highlights Architect in Kabul p. 24
Winter Garden rebuilt p. 26
CNU award winners p. 30
A new Soldier Field p. 34

Wide implications of "design" examined at the AIA convention

Gathered at the annual convention of the American Institute of Architects (AIA), with the theme this year of DesignDesign, architects enjoyed the southern hospitality of Charlotte and good news about the AIA's financial status. The convention, held May 9 to 11, drew more than 15,500 attendees.

In its business session, the AIA reported that its financial condition is far better than it was a year ago and is surpassing projected goals. The AIA's net assets, now at approximately $1.66 million, improved by $3.1 million. The Institute expects to exceed $3.5 million in net assets by the end of this year and $4.5 million by the end of 2003, far exceeding the 2003 goal of $2.5 million.

In the opening presentation, management guru Tom Peters excited, angered, and amused the full assembly hall. He challenged architects to broaden how they work and to diversify what they do. He also said the percentage of female architects is "pathetic." His message to the AIA: "Eat or be eaten."

Ando awes

2002 AIA Gold Medal Winner Tadao Ando, Hon. FAIA, thanked the AIA for the honor and showed select images of recent projects. He noted how the 1995 Kobe earthquake had a resounding impact on his thoughts on the built environment and how good design can make a difference in providing safety. Ando closed his presentation by showing streetscapes of Kobe, which have been planted with more than 300,000 trees in the areas that were most devastated by the earthquake. His message: Taking care of nature is just as important as rebuilding the city.

Convention delegates elected Eugene Hopkins, FAIA, as the 2003 AIA first vice president/president-elect and 2004 AIA president. Hopkins is a partner and senior vice president at SmithGroup, working out of the firm's Detroit and Ann Arbor offices. He founded the firm Architects Four, a firm specializing in historic preservation, in the 1980s. The 1994 president of AIA Michigan, Hopkins has been a director on the AIA national board since 1999.

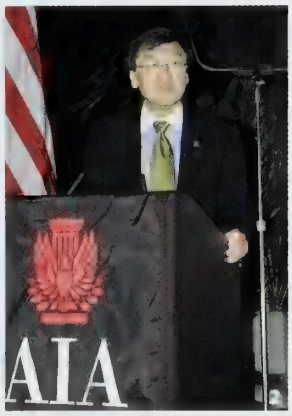
Bruce E. Blackmer, AIA, Robin M. Ellerthorpe, FAIA, and Katherine Lee Schwennsen, FAIA, were elected as AIA vice presidents for 2003, and Lawrence R. Livergood, AIA, was elected AIA secretary for 2003.

Delegates passed separate resolutions to add an associate member as a voting member on the AIA executive committee beginning in December 2004 and to create an International Associate member category for architects licensed in countries other than the U.S.

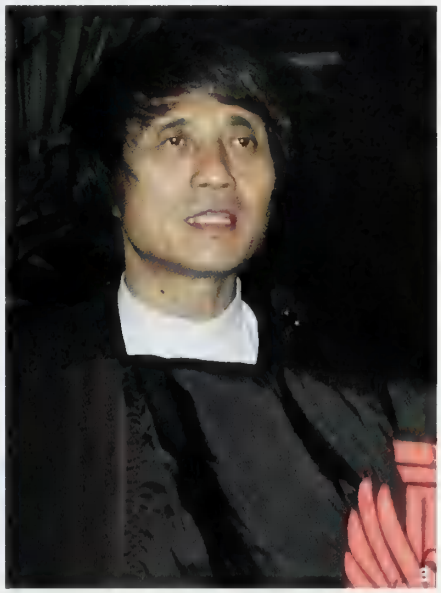
In his annual construction-outlook presentation, McGraw-Hill Construction's Vice President of Economic Affairs Robert Murray said construction will likely decline by 2 percent overall in 2002 and then increase by 4 to 5 percent in 2003. In a down year, Murray said, renovation work picks up, and that has been evident in 2002.

The AIA named McGraw-Hill Construction, publisher of ARCHITECTURAL RECORD, as the recipient of the 2002 AIA Cornerstone Partner of the Year Award.

The next AIA convention will be held in San Diego May 8 to 10, 2003. *John E. Czarnecki, Assoc. AIA*













(1) Tom Peters. (2) 2002 AIA President Gordon Chong, FAIA. (3) Tadao Ando, Hon. FAIA. (4) The 2003 AIA executive committee will include (top row, from left) Vice President Robin M. Ellerthorpe, FAIA, Vice President Bruce Blackmer, AIA, President Thompson E. Penney, FAIA, Vice President Kate Schwennsen, FAIA, First Vice President Eugene Hopkins, FAIA, (bottom row, from left) Treasurer Douglas Steidl, FAIA, E.V.P./C.E.O. Norman L. Koonce, FAIA, 2002 CACE President Karen Lewand, and Secretary Lawrence R. Livergood, AIA. (5) Michael Graves, FAIA, Richard Meier, FAIA, Arthur Erickson, Hon. FAIA, with moderator Jerry Hirshberg. (6) The Charlotte Convention Center.

PHOTOGRAPHS: © JOHN E. CZARNECKI, ASSOC. AIA (ALL)

OFF THE RECORD

A survey of the [illegible] of Architectural Registration Boards (NCARB) finds 102,002 architects in NCARB's 55 reporting jurisdictions.

The cost for the Milwaukee Art Museum addition by Santiago Calatrava [March 2002, page 92] is now estimated at $120 million, up from $100 million when completed last year. The museum is using its own collection as a guarantee for a loan.

Donald Trump is teaming with [illegible] Ruffin, owner of the New Frontier hotel and casino, to develop a 60-story, $300 to $350 million Trump Tower Las Vegas with 300 condominium units.

Pei Cobb Freed and Partners has been selected to design the Air Force Memorial near the southern border of Arlington Cemetery in Arlington, Virginia. Moore Ruble Yudell, Morphosis, Urban Instruments, and the Washington-Alexandria Center for Architecture had competed.

Los Angeles–based architect Randall Stout will design a new museum and IMAX theater for the Art Museum of Western Virginia, in Roanoke.

The European Union has said "thanks, but no thanks" to a Rem Koolhaas recommendation that the EU flag design of 12 stars on a blue background be replaced with a "flag bar code" of vertical stripes representing diversity. Rem was invited to take part in an EU brainstorming meeting last year.

Two notable figures in the world of architecture died recently. Ad executive Jay Chiat, cofounder of Chiat/Day (now TBWA/Chiat/Day) died of cancer at age 70. As Frank Gehry's client for two offices, Chiat helped catapult the career of the Santa Monica architect. British architect Sir Peter Shepheard, dean of the University of Pennsylvania Graduate School of Fine Arts in the 1970s, died at age 80.

Denver architect assists in Afghanistan







Steve Brooks (below left) with Ahmad Yusuf Nuristani, interim president Karzai's spokesperson.

Its roof is long gone and its walls riddled with bullet holes. Afghanistan's National Theater (right), located in the capital city of Kabul, has been reduced literally to a shell of a building. Constructed by Germans in the early 1960s, the theater that once occupied the center of Kabul's rich cultural life has for years sat empty and desecrated.

"During the civil war," says Denver architect Steve Brooks, AIA, "the Shiites used the place as a prison. Mujahadeen were executed there. But there's hope this place could be turned from a place of death to a place of life."

Brooks, of Denver's OZ Architecture, is one of 15 volunteer architects and engineers who traveled to Kabul for two weeks in March at the invitation of Afghanistan's interim government. Their mission: to help aid efforts to repair hospitals and schools, design bridges, and plan the restoration of the National Theater.

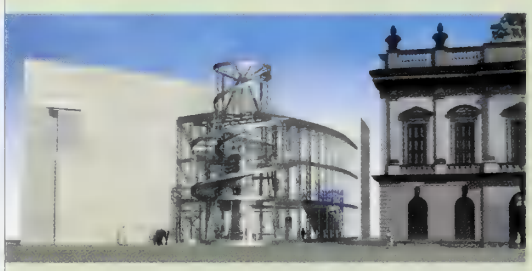
Brooks, 46, paid his own way for the 16-day trip, which was sponsored by the relief organization International Foundation of Hope.

Once in Kabul, the volunteers split into teams. Brooks was asked to help begin the process of rebuilding the theater. "And although that may seem less practical and less urgent" than the other projects, he says, "I found it to be extremely urgent to the people. It's an icon for their culture, an icon of hope."

The theater, Brooks says, is structurally sound, despite its present condition. He and his colleagues spent most of their time assessing the damage and making detailed measurements of what's left of the structure. Brooks estimates that it will take millions of dollars to complete the project. "Afghanistan doesn't have the funds to do it," he says, so a major fund-raising drive is being planned by the country's Ministry of Culture. *David Hill*

Pei's addition to the German Historical Museum nears completion

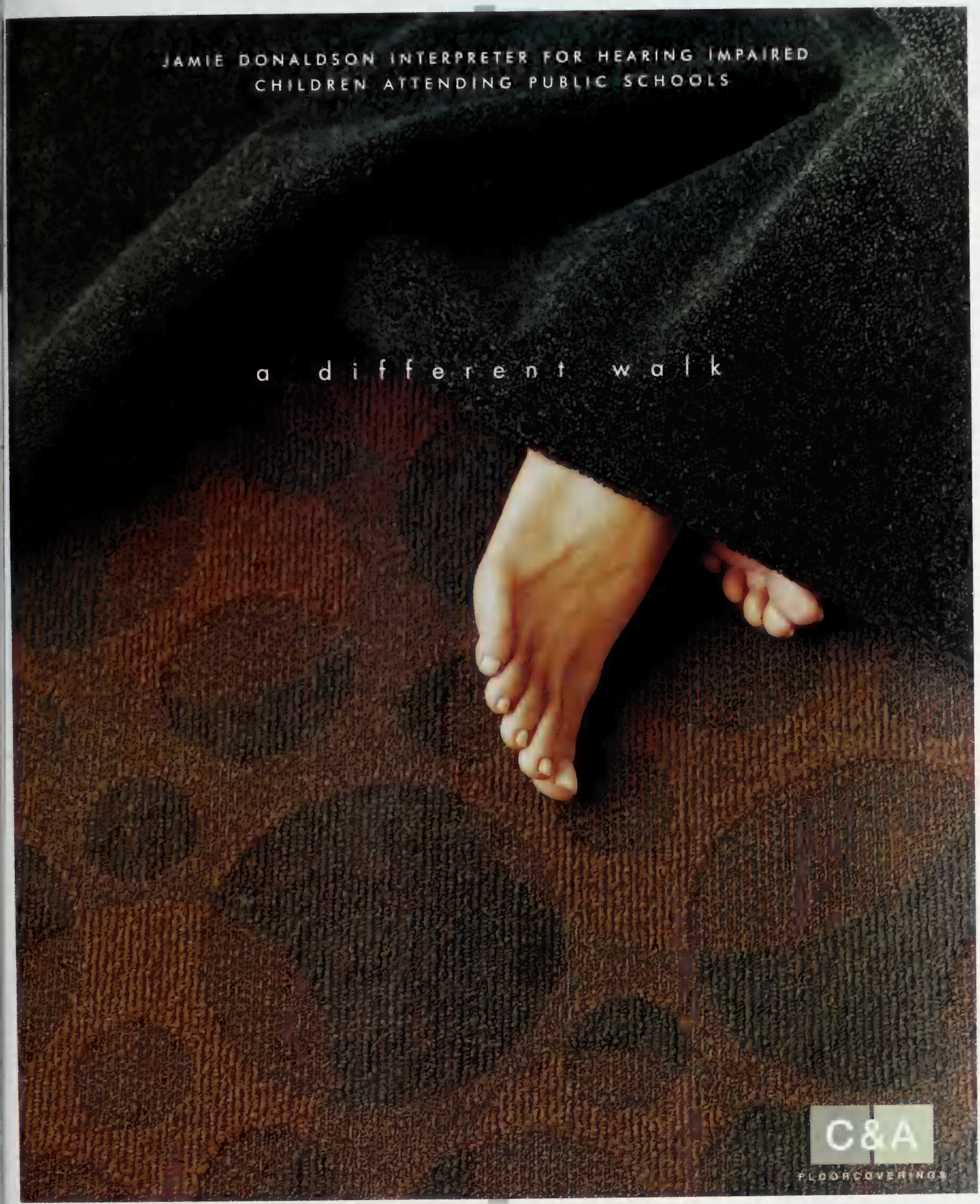
Ten days before the 85th birthday of I.M. Pei, FAIA, in April, the German Historical Museum celebrated the topping-out of the addition he designed for their building in Berlin in 1997. The addition (below), known as the Schauhaus, will be completed in February 2003 and will open to the public in May.



The federally financed project, which cost approximately $48 million, consists of a three-story, triangular limestone building for temporary exhibitions. Extending from that volume is a glass-and-steel hall punctuated by a spiral staircase intended to animate the streetscape.

One story below grade, a passageway connects the Schauhaus to the Zeughaus (right in photo), the Baroque arsenal designed by Andreas Schlüter that now houses the museum's permanent collection. Together, the buildings create an entry to Berlin's Museum Island district. Pei also designed the renovation of the Zeughaus's courtyard to invite more public use.

Pei's addition, adjacent to two buildings by Karl Friedrich Schinkel as well as to the Zeughaus, is, according to museum exhibition director Ulrike Kreitschmar, "very pure architecture. The forms are classic. There is not really a break between all these older buildings and the Pei building." German architects initially criticized Pei's commission for this important project because he was not selected in a competition. *David Sokol*



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SPECIAL REPORT

Pelli's redesigned Winter Garden on fast track for September

In the wake of the September 11, 2001, attack and resulting collapse of the footbridge connecting the Twin Towers to the World Financial Center (WFC), the WFC's Winter Garden lost its eastern facade. In late April, WFC owner Brookfield Properties disclosed the redesign for the facade by the Winter Garden's original architect, Cesar Pelli, FAIA. The facade will cost $3.5 million of the Winter Garden's total $50 million rebuilding, scheduled to be completed by this September 11.

By using a Pilkington glass system of glass fins and point attachments, Rafael Pelli, the principal collaborating with his father on the project, says the new facade is "a very light enclosure between two very solid towers" that should be viewed "not as a new front door for the Winter Garden itself, but as a passageway beyond—almost as a grand arcade to the riverfront."

In the absence of the footbridge, a new lobby comprising 2,500 square feet will be moved to ground level; otherwise, the Winter Garden's original footprint will remain unaltered. Pelli stresses the importance of the new street-level entrance, which the Winter Garden previously did not have. Battery Park City president and C.E.O. Tim Carey adds, "If you consider the possibility of burying at least a piece of West Street in front of the WFC, that gateway will make a great connection" between the Hudson River and the rest of downtown Manhattan.

Melissa Coley, vice president of communications at Brookfield, says the redesign will not alter the Winter Garden's public arts and events programming. *D.S.*



The Winter Garden eastern facade (prior to September 11, 2001, right) will have a new street-level entrance and glass wall (below).

Urban design team to develop WTC land-use plan by year end

At press time in late May, a team led by New York firm Beyer Blinder Belle was being recommended by a selection committee to work with the Lower Manhattan Development Corporation (LMDC) and the Port Authority of New York and New Jersey to develop what the Port Authority describes as an "urban planning study of the downtown Manhattan area with special emphasis on … the World Trade Center site and adjacent areas." Fourteen other teams had also submitted proposals for the job. The final selection was pending LMDC and Port Authority approval.

Funded by the Port Authority at an amount not to exceed $3 million, the study will require a review of planning and transportation options by early July and a preferred land-use plan by December. The selected urban design team will be working in concert with Alexander Garvin, the LMDC vice president for planning, design, and development, to develop the plan.

The LMDC has already taken exception to the usual RFP process and hired New York firm Peterson/Littenberg Architecture & Urban Design, led by Steven K. Peterson and Barbara Littenberg, as in-house consultants to the LMDC planning staff. Peterson/Littenberg has been working for the LMDC for more than three months, supplementing Garvin's LMDC planning staff with two phases of work to be completed by July for a $375,000 fee. It is analyzing the existing context and conditions, examining memorial alternatives in terms of typology and potential location, and developing a booklet of design alternatives for the entire site. *J.E.C.*

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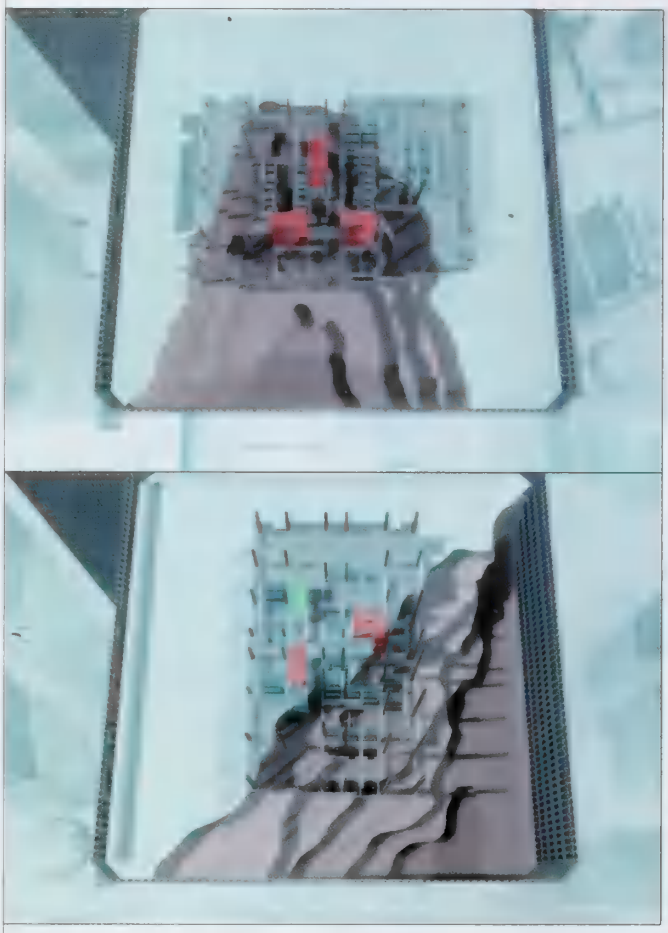
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SPECIAL REPORT



An animation for *NOVA* depicts the damage done by planes crashing into the North Tower (top) and South Tower (bottom).

Report on WTC collapse leaves more questions than definitive answers

The most comprehensive analysis to date of the collapse of the World Trade Center towers, a report by the Federal Emergency Management Agency and the American Society of Civil Engineers, was released May 1. While the report offered possible recommendations for skyscraper design in light of the disaster, it says designing buildings to withstand a possible disaster such as September 11 "may not be technically feasible." It goes on to say, "Resources should be directed primarily to aviation and other security measures rather than to hardening buildings against airplane impact."

The report acknowledges that national fire tests and standards proved inconclusive in evaluating how the buildings performed in this disaster. Thus, the report is unable to fairly measure the effect on the buildings of the attacks.

Most automatic sprinklers were likely disabled by the planes' impacts, the report notes, and much of the spray-on fireproofing on steel trusses was dislodged when they hit and fire ensued. "The heat output from these fires is estimated to have been comparable to the power produced by a large commercial power-generating station," the report says. The fire temperature likely reached 2,000 degrees Fahrenheit.

Recommendations include examinations of fireproofing-material quality, the placement and size of emergency stairwells, and evacuation procedures. The report further recommends "an improved level of interaction between structural and fire-protection engineers … to consider the behavior of the structural system under fire as an integral part of the design process."

A wider inquiry is being planned. The National Institute of Standards and Technology (NIST), in Maryland, is awaiting approval to conduct a study, of which the first phase would cost $16 million and last two years. Rep. Sherwood L. Boehlert (R-NY) and Rep. Anthony D. Weiner (D-NY) have cosponsored legislation to enable a new NIST agency—a construction safety board—to have wide investigative powers, including subpoena powers, to investigate building failures.

The PBS television program *NOVA* aired a special, *Why the Towers Fell*, to coincide with the release of the report. The show, which will re-air in September, examined the root causes of the towers' collapse by following a team of structural and fire engineers researching for the report. Visit www.pbs.org/nova/wtc to learn more. *J.E.C.*

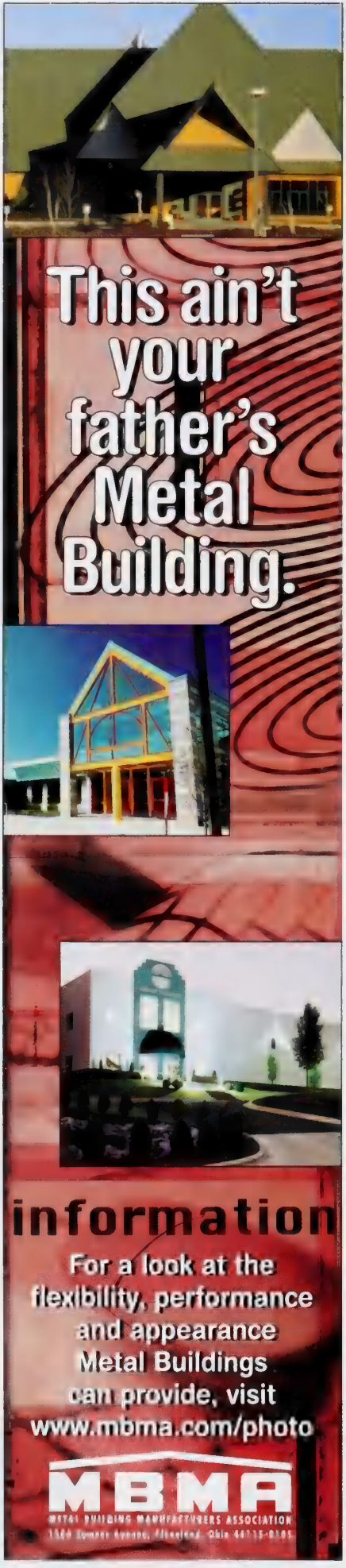
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CNU honors 18 projects with Charter Awards

The Congress for the New Urbanism (CNU) has named 18 projects as winners of its second annual Charter Awards. The projects will be honored at the 10th Congress for the New Urbanism in Miami Beach on June 15.

The winners are: **State of Maryland's Smart Growth and Neighborhood Conservation Initiative**—State of Maryland Office of Smart Growth; **The Confluence Master Plan: A Conservation, Heritage, and Recreation Corridor**, St. Louis—H3 Studio; **Development Plan for Sectors A & D**, Beirut, Lebanon—Skidmore, Owings & Merrill (SOM); **Initiative for a 20/20 Vision for Concord, New Hampshire**—Goody, Clancy & Associates; **Holly Park Redevelopment: Phase I**, Seattle—Weinstein Copeland Architects; **Stateway Gardens Redevelopment Plan**, Chicago—SOM; **Addison Circle**, Addison, Texas—RTKL Associates; **Hayward Downtown Plan & Cannery Area**, Hayward, California—Solomon E.T.C. Architecture and Urban Design; **University of Washington Tacoma Master Plan**—Moore Ruble Yudell Architects & Planners; **Riverview HOPE VI Housing**, Cleveland—Goody, Clancy & Associates; **Bethesda Row**, Bethesda, Maryland—Federal Realty Investment Trust; **Millennium Place**, Boston—Gary Edward Handel + Associates Architects; **Northeastern University West Campus Residence Halls**, Boston—William Rawn Associates, Architects; **Howard University—Le Droit Park Revitalization Initiative**, Washington, D.C.—Sorg and Associates; **101 San Fernando**, San Jose, California—Solomon E. T. C. Architecture and Urban Design; **Chelsea Grande**, New York—Richard Cook & Associates Architects; **Seven Fountains**, West Hollywood, California—Moule & Polyzoides Architects & Urbanists; and **Timothy Dwight Elementary School Addition**, New Haven, Connecticut—Michael Haverland Architect/Yale Urban Design Workshop. *J.E.C.*

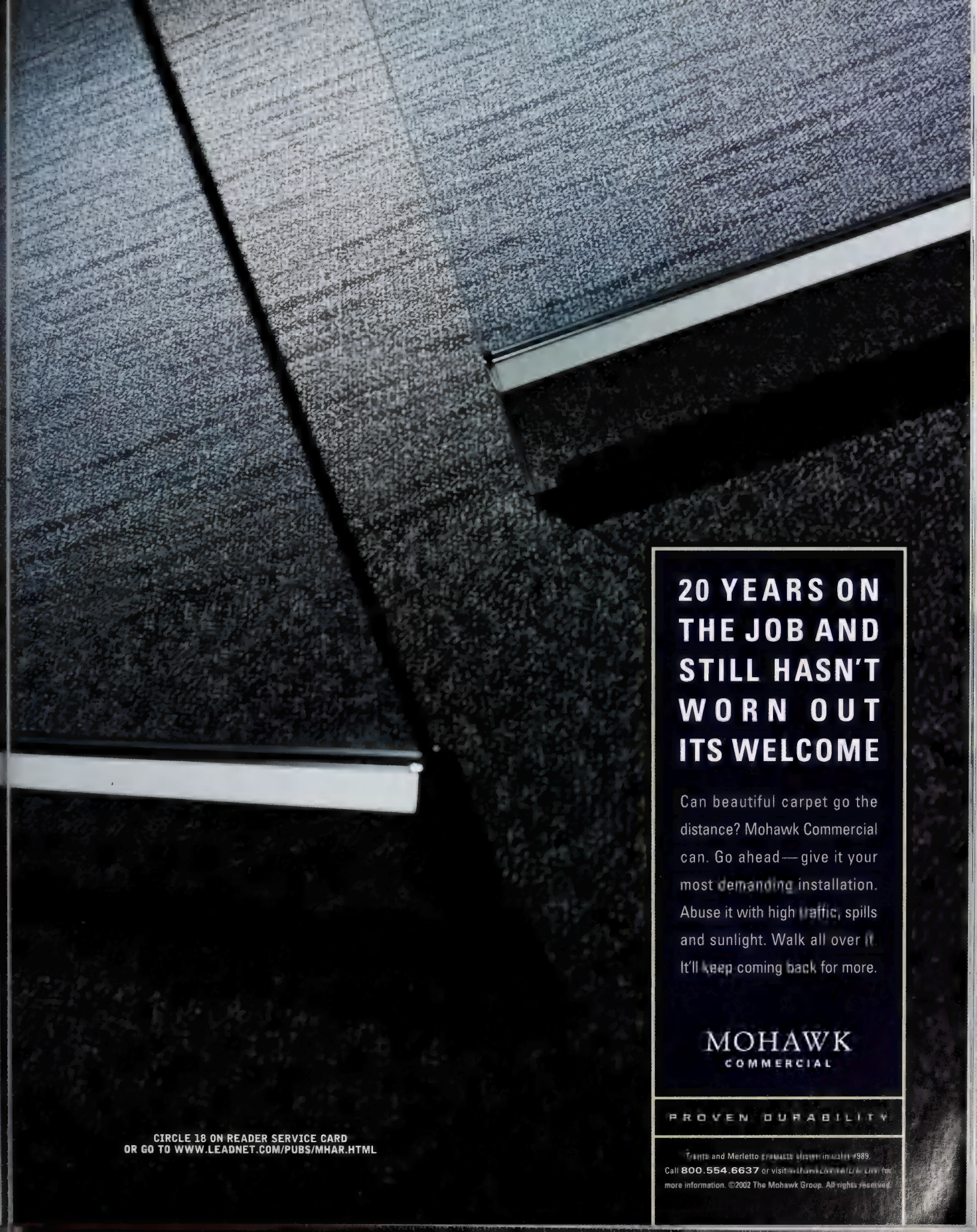

Howard University—Le Droit Park Revitalization Initiative


Millennium Place, Boston

World Trade Center images and proposals at Biennale

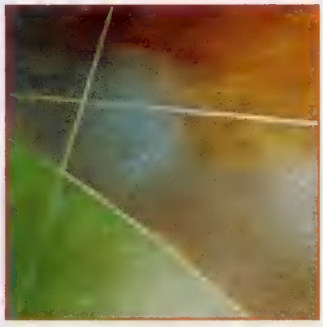
An exhibition called *World Trade Center: Yesterday, Today, Tomorrow* will comprise the United States entry in the 2002 Biennale di Venezia, the international art and architecture exhibition that will be held September 8 to November 24, in Venice. The theme for this year's architecture section is "Next." ARCHITECTURAL RECORD editor in chief Robert Ivy, FAIA, serves as commissioner for the American Pavilion, the first U.S. exhibition at the Biennale to receive funding from the U.S. State Department.

Half of the architecture exhibition will feature the photography of Joel Meyerowitz, who, with a large-format camera, produced more than 7,000 images of Ground Zero over the course of seven months. The Meyerowitz photography show is entitled *The Aftermath and Before*. The second installation on display in the U.S. Pavilion will be *A New World Trade Center: Design Proposals*. The Max Protetch Gallery in New York City organized this exhibition of more than 60 design ideas for the World Trade Center site [RECORD, March 2002, page 59] submitted by an international roster of architects including Steven Holl, Daniel Libeskind, and the late Samuel Mockbee. *Kevin Lerner*



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Varying in scale and approach, AIA's Top 10 Green Projects hold lessons in human behavior as well as sustainability

To recognize buildings designed to integrate architecture, technology, and natural systems, the American Institute of Architects' Committee on the Environment annually names the "Top 10 Green Projects." This year's winners illustrate how far the sustainable design movement in the U.S. has come in the five years since the program began, as well as some of the contradictions within it.

The jury—Randy Croxton, FAIA, Croxton Collaborative; Sim van der Ryn, Van der Ryn Architects; Horst Berger, City University of New York; and Guy Battle, Battle McCarthy—assessed each project's contribution to existing ecosystems, connections to the surrounding community, utilization of high-performance technologies, energy use, and material and resource use. Reducing a three-dimensional experience to two-dimensional representation has always been a challenge for design-awards submissions. These jurors had to consider an additional dimension: time. Understanding how a person lives in a building in nature over the course of a day is central to sustainable design.

The top 10 include the **Bank of Astoria** in Manzanita, Oregon, by Tom Bender, Architect; the **Department of the Navy's Building 850** in Port Hueneme, California, by CTG Energetics; **Camp Arroyo** in Livermore, California, by Siegel & Strain Architects; HOK's **Edificio Malecon** in Buenos Aires; **Iowa Association of Municipal Utilities** in Ankeny, Iowa, by RDG Bussard Dikis; the **National Wildlife Federation (NWF) Headquarters** in Reston, Virginia, by HOK; William McDonough + Partners' **Adam Joseph Lewis Center for Environmental Studies**, Oberlin College in Oberlin, Ohio; **Pier 1** in San Francisco by SMWM; Mithun's **Puget Sound Environmental Learning Center** on Bainbridge Island, Washington; and the **Tofte Cabin** in Tofte, Minnesota, by Sarah Nettleton Architects.

Scale and approach varied widely, from a 950-square-foot cabin to the 100,00-square-foot NWF Headquarters. The Puget Sound Environmental Learning Center and Camp Arroyo both utilized several sustainable design strategies, yielding an engaging architecture-as-laboratory result. Pier 1 is an elegant and inventive adaptive reuse that fully engaged its site, the water's edge, as part of its solution. *Kira L. Gould*







National Wildlife Federation Headquarters (above) and Edificio Malecon (top right), by HOK. Puget Sound Environmental Learning Center, by Mithun (right).

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Soldier Field reconstruction begins despite opposition

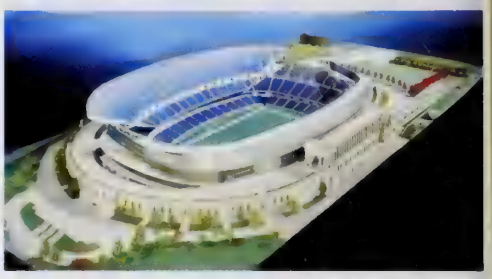
An Illinois state court decision in April cleared the way for the adaptive-reuse of Soldier Field as a state-of-the-art 61,500-seat football stadium for the Chicago Bears. Though selective demolition began within hours of the Bears' playoff loss in January, opponents of the new design continued efforts to stymie the $632 million project by questioning the legality of the complex public/private funding approved by the Illinois legislature in November 2000.

Demolition of the old seating and ancillary structures is complete and foundation work is underway. A fast-track construction schedule promises to conclude the project in time for the 2003 football season. For 2002, the Bears will play 140 miles south of Chicago at the University of Illinois' Memorial Stadium at Urbana-Champaign.

Soldier Field was completed in 1926 as a memorial to the soldiers of World War I. Designed by Chicago's Holabird and Roche, the horseshoe shaped, cast-stone structure is perhaps best known for its signature element—a pair of 57-foot-tall Greek Revival colonnades overlooking the gridiron from atop a 48-foot-tall plinth.

As planned by Chicago-based Lohan Associates and designed by Boston's Wood and Zapata, the new design inserts a steeply pitched seating bowl clad in stainless steel and glass within the old envelope. The distinctive colonnades will be located outside and under the seating of the new stadium that rises almost 40-





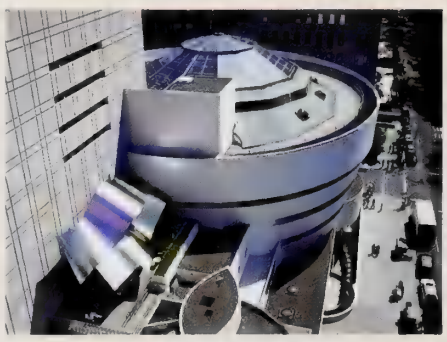
Work has begun on the Soldier Field reconstruction (top), shown in a model (above).

feet above the facade's crowning acroteria. The old stadium "was a Greek amphitheater," explains Dirk Lohan, FAIA, where "people accepted craning their necks a little bit." He cites more demanding modern expectations about sightlines as the driving factor in developing the new design.

Since the design's original unveiling, Friends of the Parks and the Landmarks Preservation Council of Illinois have vociferously questioned the scheme's aesthetics, bulk, and whether an NFL sports facility is a genuine public use of the lakefront park property. *Ed Keegan*

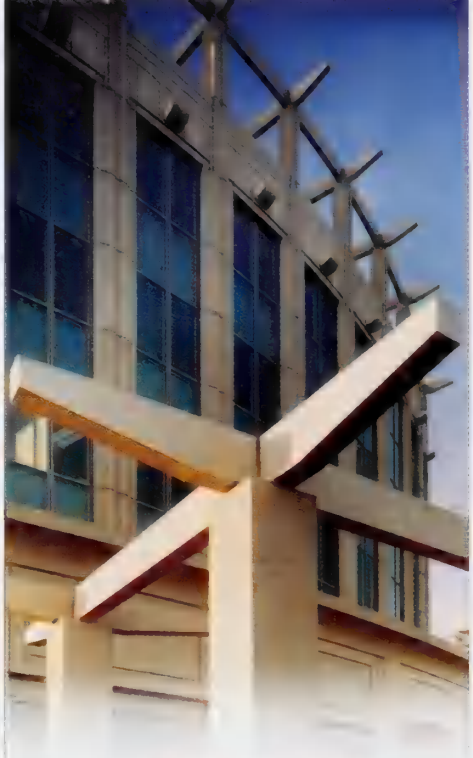
Guggenheim wants Gehry canopy to be permanent addition

Frank Lloyd Wright shocked New York's Upper East Side with his design for the Solomon R. Guggenheim Museum in the 1950s. Today, the museum is again testing the aesthetic sensibilities of its wealthy neighbors by filing a request to the city's Landmarks Preservation Commission to have a 42-foot-long titanium-clad canopy designed by Frank Gehry, FAIA, made a permanent addition to its exterior. The $250,000 canopy, commissioned by Guggenheim director Thomas Krens for the Gehry retrospective show that ended last fall, remains over the museum's Lefrak terrace.



Gehry's curvy Guggenheim canopy might stay.

Designated a city landmark in 1990, the Guggenheim requires approval for the canopy from the city's Landmarks Preservation Commission. The local Community Board 8 voted unanimously in April to recommend that the commission reject the proposal. At press time, the commission had not made a decision. "The Guggenheim has been involved in lots of fights over the years," board member Charles S. Warren told *The New York Observer*. "This is an additional insult to the building." *J.E.C.*



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A grass roof will top the Des Moines Library, one of Chipperfield's first U.S. public projects

The new main public library near downtown Des Moines will be green, literally. A grass roof is planned to cover the library, one of London architect David Chipperfield's first public projects in the United States.

Construction of the 110,000-square-foot, two-story building will begin in spring 2003 and take 18 to 24 months, says Cal Lewis, FAIA, principal of Herbert Lewis Kruse Blunck, the Des Moines–based firm working with Chipperfield on the $32 million project. Chipperfield won the job in a 2001 competition.

To be built on a block with only one other existing building, a Masonic Temple, the library will stretch along the edge of a series of blocks (in green, in photo far right), called Western Gateway Development, that will be developed as an urban park.

"The library plan explores the concept of park and library engaging each other, as opposed to one being subservient to the other," Lewis says. The building will include a winter-garden approach to the entrance from the park. Exterior walls will have a large amount of glazing facing the park side for daylight. Inside, library stacks will be configured to allow maximum views of the park. The grass roof is Chipperfield's response to local businesses that were concerned that views from their taller surrounding buildings would look down on one expansive gray surface.

"Our challenge has been to create a building that responds to its place in the city as well as defines the location," says Martin Ebert, an architect with David Chipperfield Architects. "From the beginning, the idea has been to design an incubator that starts the development of the Gateway West project." In plan, the building form is configured to both maintain an urban street corner edge and stretch at various angles into the park. A path through the library, which will include a conference center, bookshop, and café, will link downtown to the park.

This will be one of two Chipperfield projects in Iowa, including the $30 million, 82,000-square-foot Figge Art Center in Davenport, Iowa, where construction will begin this year. *Linda Hallam and J.E.C.*





The library will be on the edge of a new linear urban park (right), and stacks (above) will be situated for park views.

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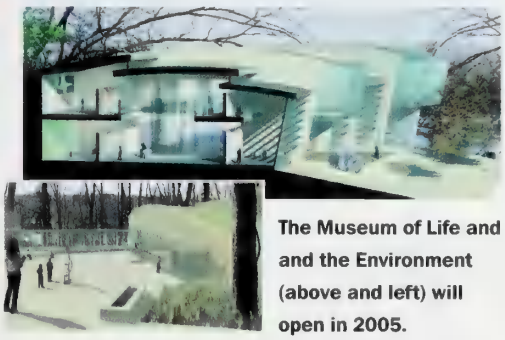
A 30-story tower by Cesar Pelli is planned for a site adjacent to Philly's 30th Street Station.

Pelli skyscraper to rise in Philadelphia Cash-strapped Amtrak announced it is leasing a site next to Philadelphia's 30th Street Station to Brandywine Realty Trust for a 32-story office tower by Cesar Pelli & Associates. The tower, which could be complete by 2005, would be the first new skyscraper in Philadelphia since 1991.

GSA issues order for public building information The U.S. General Services Administration (GSA) has released new directives for a category of information about its public buildings known as "sensitive but unclassified." The directives cover information that could benefit potential terrorists, such as equipment plans, operating plans, and the locations of secure functions of GSA buildings. In order to maintain open access to these documents for tenants, architects, engineers, and contractors, the GSA set out three principles governing the distribution of the newly protected materials: (1) only give the information to those who have a need to know; (2) keep records of who received the information; and (3) safeguard the information during use and destroy it properly after use. All of the protected materials must bear prominent stamps marking them "for official use only." Architects and others with access to the information will be able to redistribute it, provided that they also follow the three principles, and all people with access to the information will need to provide proper identification.

McDonough designs first museum project Charlottesville, Virginia–based William McDonough + Partners has completed the design for its first museum, The Museum of Life and the Environment (right), in York County, South Carolina. Designed in collaboration with Nelson-Byrd Landscape Architects and Ralph Appelbaum Associates, the 120,000-square-foot "green museum" will focus on the heritage of the Carolina Piedmont landscape. The building will feature a radiant-floor system to regulate temperature, photovoltaics for solar energy, exterior sunshading, and structural walls of custom concrete block.

Plans for Pentagon Memorial competition The U.S. Army Corps of Engineers has announced plans for an open competition to design an outdoor memorial to the victims of the September 11 attack on the Pentagon. The memorial will occupy a site near the point of impact. Submissions are due in September. For more information about the competition, visit http://pentagon-memorial.nab.usace.army.mil.



The Museum of Life and and the Environment (above and left) will open in 2005.

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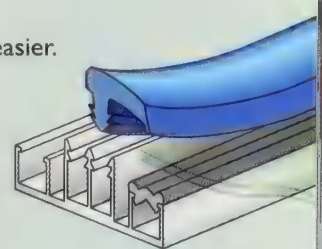
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Dates & Events

Ongoing Exhibitions

The Nature of Architecture: Photographs by Amy Lamb
Washington, D.C.
May 3–July 26, 2002
In former biologist Amy Lamb's latest exhibition, she unveils the underlying similarities between organic form and the built environment through a series of photographic interpretations that illustrate the relationship between the two. At the Octagon. Call 202/626-7486 for information.

Gerald Zugmann: Blue Universe
West Hollywood, Calif.
May 9–September 8, 2002
This exhibition illustrates the decade-long collaboration between architectural photographer Gerald Zugmann and avant-garde Austrian architectural firm Coop Himmelb(l)au. At the Mak Center. Contact 323/651-1510.

Skin: Surface, Substance+Design
New York City
May 7–September 15, 2002
This exhibition skims the surface to explore the different ways skin is articulated in design. On display are a variety of objects and artifacts by such notable designers as Greg Lynn, Petra Blaisse, Ross Lovegrove, and Marcel Wanders, organized into five themes, each delving into questions of beauty, technology, and artificial life. At the Cooper-Hewitt, National Design Museum. Contact 212/849-8400.

Houses X Artists=Design Without Rules
West Hollywood, Calif.
Through June 25, 2002
This is the first phase of the six-month exhibition *Houses by Artists*. The Mak Center, in collaboration with New York–based firm OpenOffice, has invited 10 contemporary artists to stretch their imaginations and design a house free of the typical constraints imposed on architects. Their proposals will be presented in model and digital form as they evolve in three phases over the next six months. At the Mak Center. Contact 323/651-1510.

Utopia & Reality: Modernity in Sweden 1900–1960
New York City
Through June 16, 2002
This timely exhibition surveys Swedish art and culture from the first half of the 20th century, when youth, progress, and innovation became vehicles for understanding Modernism and the rapidly changing world of the time. A full range of artistic expression will be covered, from architectural drawings and models to painting, sculpture, graphic design, and photography. At the Bard Graduate Center. Call 212/501-3000 for information.

Museums for the New Millennium: Concepts, Projects, Buildings
Milwaukee
Through August 4, 2002
This exhibition presents a cross section of the most significant museum projects designed and built within the past 10 years. Through drawing, photographs, and original models, the show features 25 museums from around the world,



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Dates & Events

including Milwaukee Art Museum expansion by Santiago Calatrava. At the Milwaukee Art Museum. Contact 414/224-3200.

Designing the Future: The Queens Museum of Art
New York City
Through July 7, 2002
An exhibition featuring the drawings and models from the Queens Museum of Art Design Competition. On view are the works of 198 competitors and five Stage II finalists. The exhibition also traces the history of the museum's building. At the Queens Museum of Art. Contact 718/592-9700.

The Geometry of Seeing: Perspective and the Dawn of Virtual Space
Los Angeles
Through July 7, 2002
Through illustrated treatises, drawings, and prints, this exhibition traces the complex yet fascinating history of perspective drawing over a period of four centuries. On display is an extraordinary range of theories and rendering techniques, including those of Leon Battista Alberti, Albrecht Dürer, and Sebastiano Serlio. At the Getty Center. Contact 310/440-7360.

Bridging America With Frank Lloyd Wright
Minneapolis
Through July 7, 2002
In his lifetime, Wright designed more than 40 bridges and skyways, few of which were actually completed. These bridges are the focus of the exhibition, as well as a tribute to the new Third Avenue Bridge in Minneapolis designed by Taliesin Architects. Through models, drawings, and video, Wright's futuristic ideas about bridging space for man and car will be on display. At the Minneapolis Institute of Art. Contact 612/870-3131.

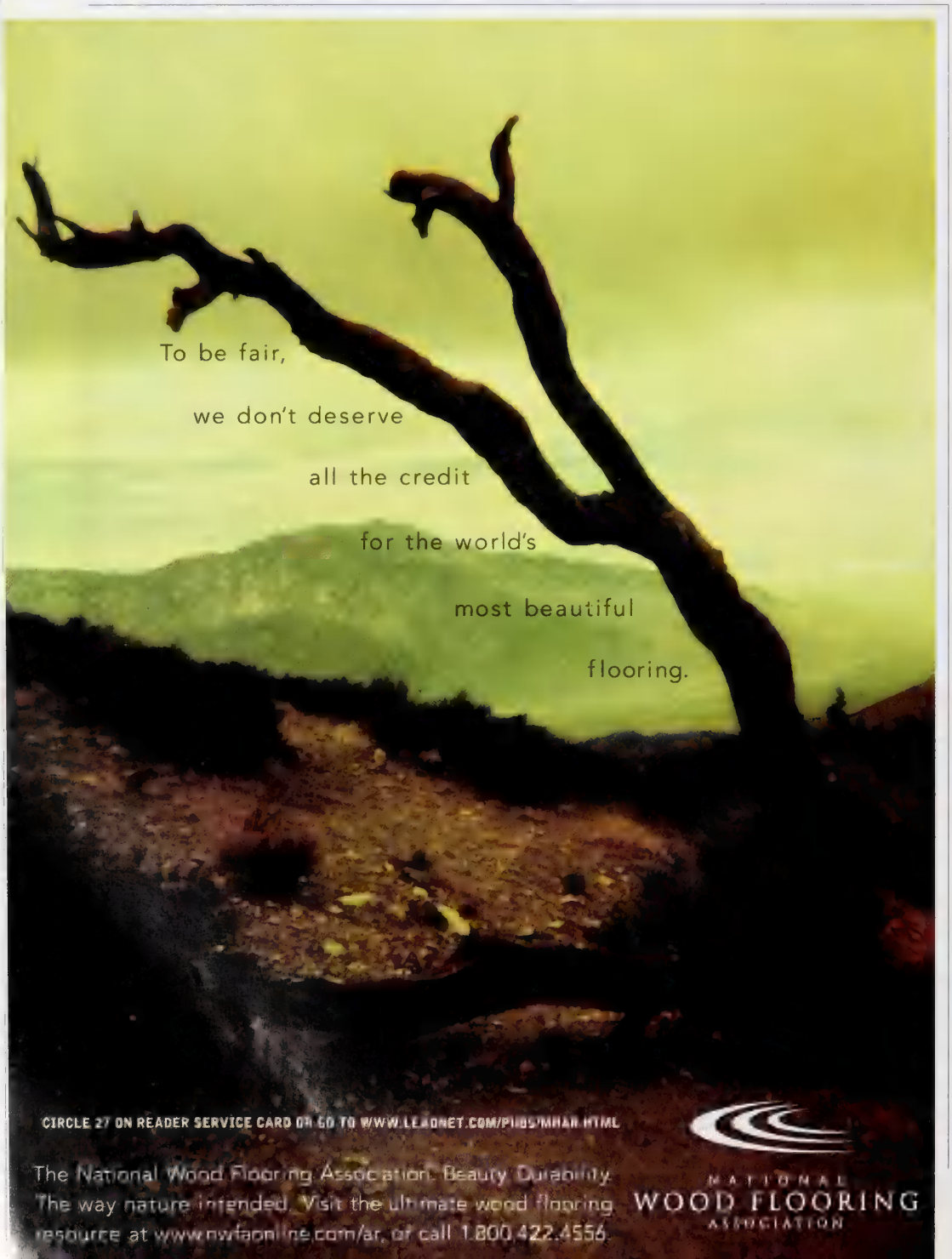
Gaudí Experiences: Space, Geometry, Structure, and Construction
Barcelona, Spain
Through September 27, 2002
Throughout his career, Gaudí's feats of structural ingenuity and seemingly impossible design never ceased to amaze the public. In a tribute to his genius, this exhibition unravels the mystery behind Gaudí's construction by exploring the extraordinary methods of calculation used by the architect. At the Museu d'Historia de la Ciutat. Visit www.gaudi2002.bcn.es for more information.

On Track: Transit and the American City
Washington, D.C.
Through October 27, 2002
This exhibition hopes to inform decisions on the future of both transportation and the city by exploring the spatial, political, technological, and human dimensions of transit's relationship to the city. At the National Building Museum. Visit www.nbm.org, or call 202/272-2448.

Lectures, Symposia, & Conferences

Building for the 21st Century: Lessons from North American and European Green Buildings
Washington, D.C.
June 12, 2002
Bill Browning of the Rocky Mountain Institute will discuss recent sustainable European and American buildings. At the National Building Museum. Visit www.nbm.org, or call 202/272-2448.

Legacy of the Rural Studio
June 18, 2002
For 10 years, the late Samuel Mockbee and Auburn University's Rural Studio students created buildings from recycled and salvaged materials





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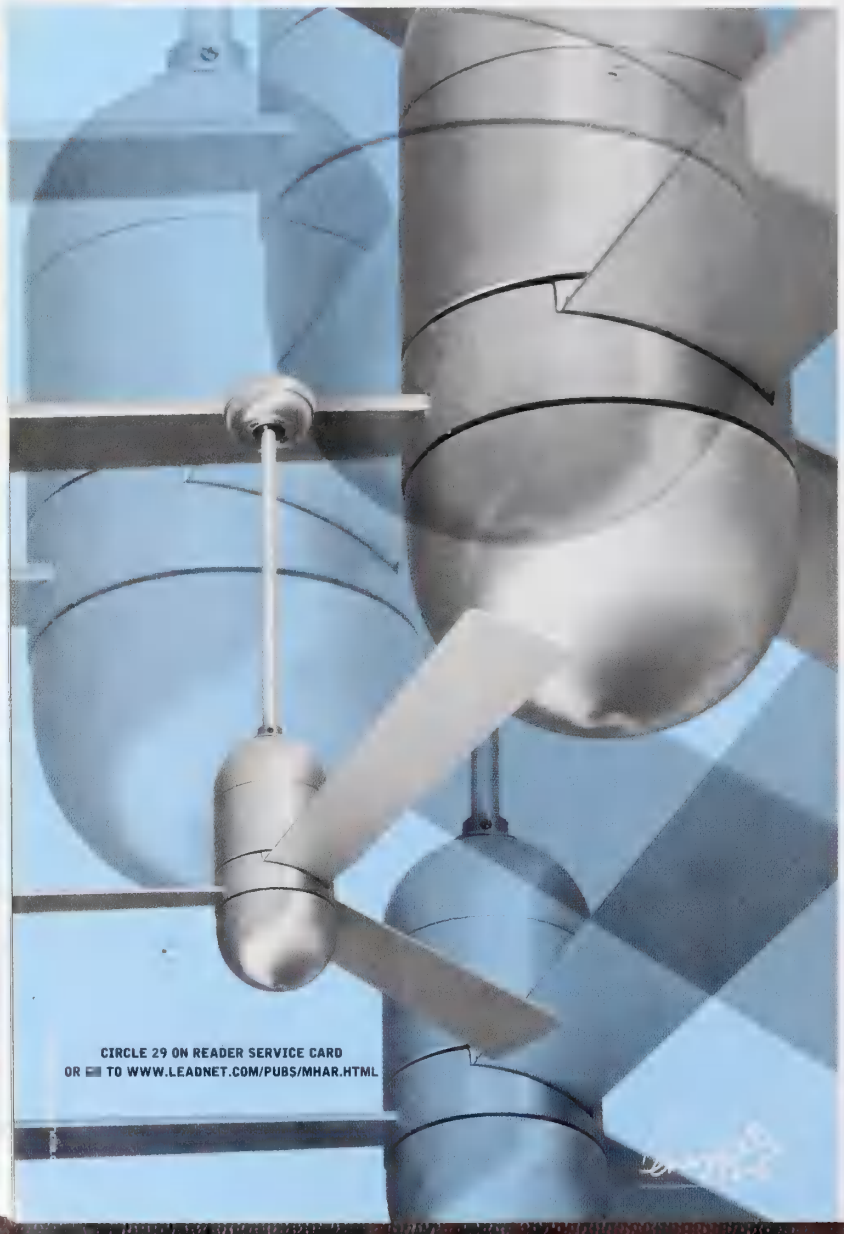
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Dates & Events

for the impoverished residents of Hale County, Alabama. Author Andrea Oppenheimer Dean and Rural Studio professors Andrew Freear and Steve Hoffman will discuss the legacy of Mockbee, who died last December. Visit www.nbm.org, or call 202/272-2448.

A+A: Reflections on Architecture
Barcelona, Spain
June 20–22, 2002
A festival devoted to the fusion of architecture and the moving image. Architects, computer programmers, artists, and filmmakers are invited to analyze possible relationships between animation, experimental film, digital technology, and the creation of 3D space. Sponsored by the Collegi d'Architectes de Catalunya. E-mail: coacanimatica@coac.es.

International Quingue Symposium
Newport, R.I.
June 27–30, 2002
This four-day symposium brings together architects, artisans, and scholars to examine key issues in historic preservation practices. It will feature the work of local preservationists and institutions. At the Salve Regina University, 401/341-2156.

What Matters Now: 52nd International Design Conference
Aspen, Colo.
August 21–24, 2002
Join leaders in architecture, the arts, and science in this year's annual design conference. 2002 program committee members include Walter Hood, Michael Rotondi, Lorraine Wild, Paola Antonelli, Bran Ferren, Gregg Pasquarelli, and Billie Tsien. Visit www.idca.org, or call 800/815-0059, for more information.

Universal versus Individual: The Architecture of the 1960s
Jyvaskyla, Finland
August 30–September 1, 2002
This conference will explore the architecture of the 1960s by illuminating universal currents as well as individual and regional trends. Keynote speakers include Beatriz Colomina, Claes Caldenby, and Dennis Doorman. Sponsored and organized by the Alvar Aalto Academy. For more information, visit www.alvaraalto.fi/conference/universal.

Conventions

The BuildingsNY Show
New York City
June 18–19, 2002
Join more than 10,000 industry suppliers, distributors, manufacturers, and trade associations in New York's premier building, renovation, and restoration event. At the Jacob Javits Convention Center. Contact 888/334-8702.

XXI World Congress of Architecture
Berlin
July 22–26, 2002
The Union Internationale des Architectes invites architects and students from around the world to discuss responsibilities and strategies for environmental and sustainable design within an urban context. At the International Congress Centre Berlin. Contact 49 30 9012 1314 for more information.

Rail-Volution 2002
Washington, D.C.
October 3–6, 2002
This year's conference focuses on the community's role in making transit and land-use decisions and brings a unique cross section of citizen activists, business leaders, elected officials, and planners to the table to discuss the issues. Rail-Volution features a variety of sessions, including hands-on workshops, case studies, and moderated panel discussions. Contact 800/788-7077.



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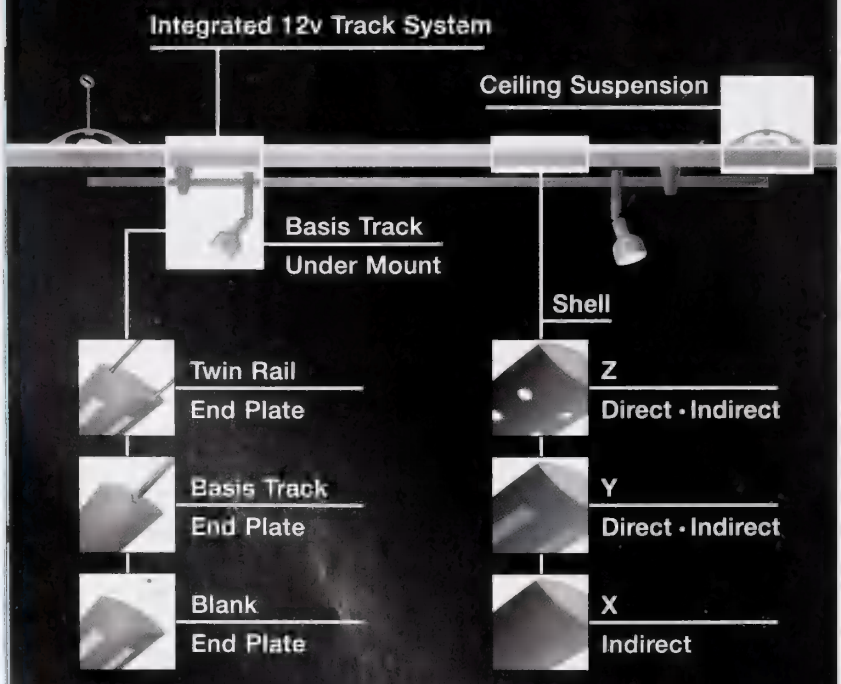
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Dates & Events

Competitions

55 Water Street Design Competition

Deadline: July 8, 2002

The New Water Street Corporation and the Municipal Arts Society are pleased to announce a design competition for the elevated public plaza at 55 Water Street in Lower Manhattan near the World Trade Center disaster site. Architects and landscape architects are invited to submit their proposals. Six individual firms will be selected and given a stipend to develop their plans. Visit www.mas.org for more information.

11th Annual Unbuilt Design Awards

Deadline: July 15, 2002

The Boston Society of Architects invites architects, educators, and students to submit projects that, to date, remain unbuilt. Both theoretical and client-sponsored projects are eligible. Visit www.architects.org for more information.

The Great Egyptian Museum Competition

Deadline: August 10, 2002

An open invitation to architects from around the world to participate in the creative design of this new museum. Located near the Giza pyramids, the museum will house some of Egypt's most ancient monuments and treasures. Visit www.gem.gov.eg.

Shinkenchiku Residential Design Competition 2002

Deadline: September 2, 2002

This competition, held annually by The Japan Architect, invites architects from around the world to explore the theme "Dwelling Where the Muses are Served/Spared Emptiness." The entire competition will be judged by one architect. The committee this year has selected Daniel Libeskind as judge. Sponsored by Shinkenchiku-sha Company. Visit www.japan-architect.co.jp.

26th Annual Cooper Source Awards

Deadline: October 25, 2002

Open to any lighting designers, architects, interior designers, or other professionals who use light in an interior or exterior application. Two categories are available, one for professionals, the other for students, who will compete for a $1,500 cash prize. For more information, visit www.cooperlighting.com.

Mobile HIV/AIDS Health Clinic

Deadline: November 1, 2002

Architecture for Humanity, a nonprofit organization, announces its 2002 international design competition. Architects are invited to submit designs for a fully equipped mobile medical unit and HIV/AIDS treatment center for use specifically in Africa. Entry fees, donations, and additional fundraising sources will be used to build the winner's prototype. Visit www.architectureforhumanity.org.

Events & Programs

Summer Design Institute 2002

New York City

July 15–19, 2002

Educators and designers are invited to join a panel of international design educators to discuss strategies for engaging K-12 students in the design process. Hosted by Cooper-Hewitt, National Design Museum and the American Institute of Graphic Arts, this one-week program will feature workshops, studio visits, and keynote presentations by notable designers, including David Kelly, Eames Demetrios, John Maeda, and Eileen Adams. At Cooper-Hewitt, National Design Museum. Contact 212/849-8385.

Please send event and competition listings two months prior to the event or deadline to ingrid_whitehead@mcgraw-hill.com.

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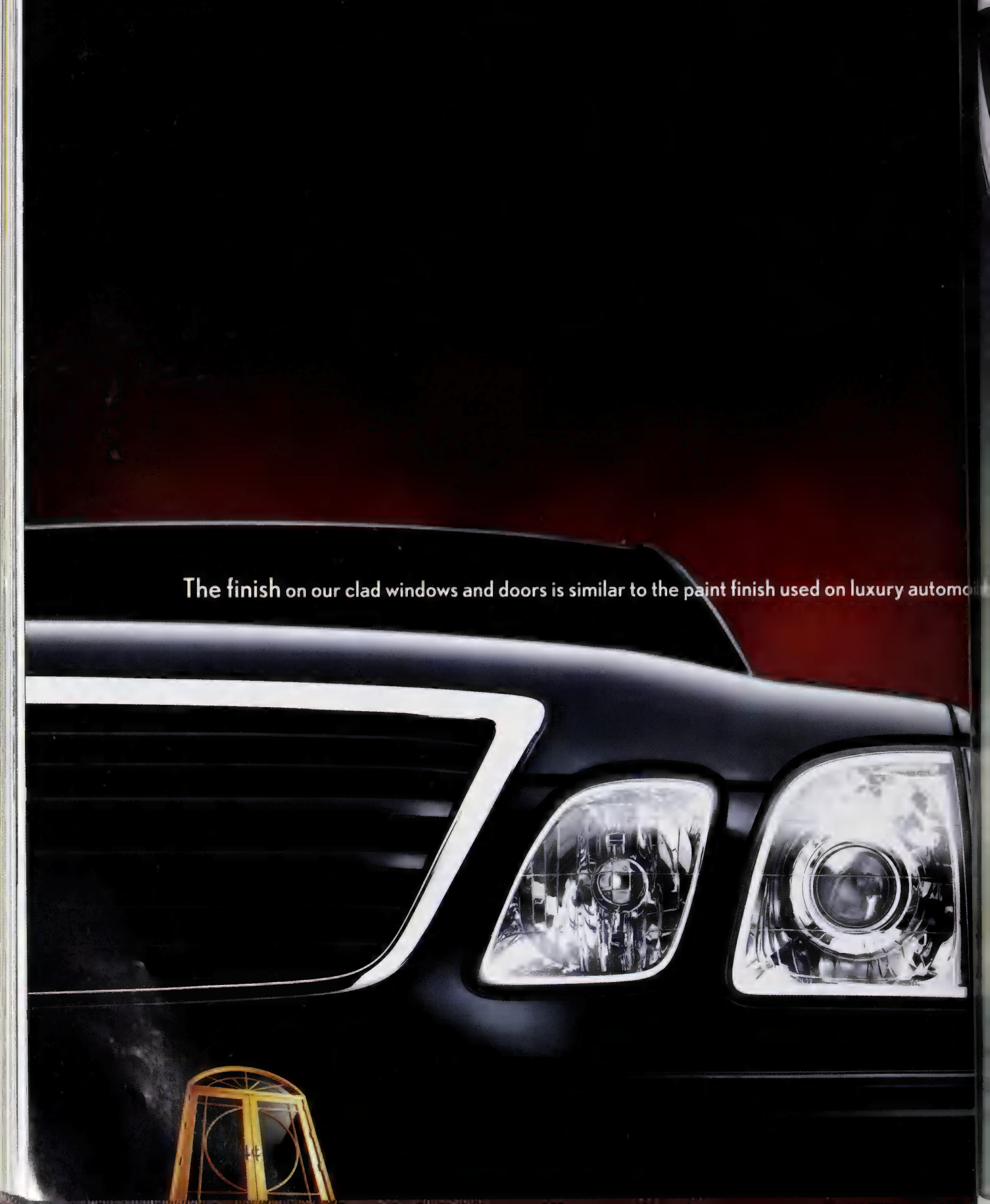
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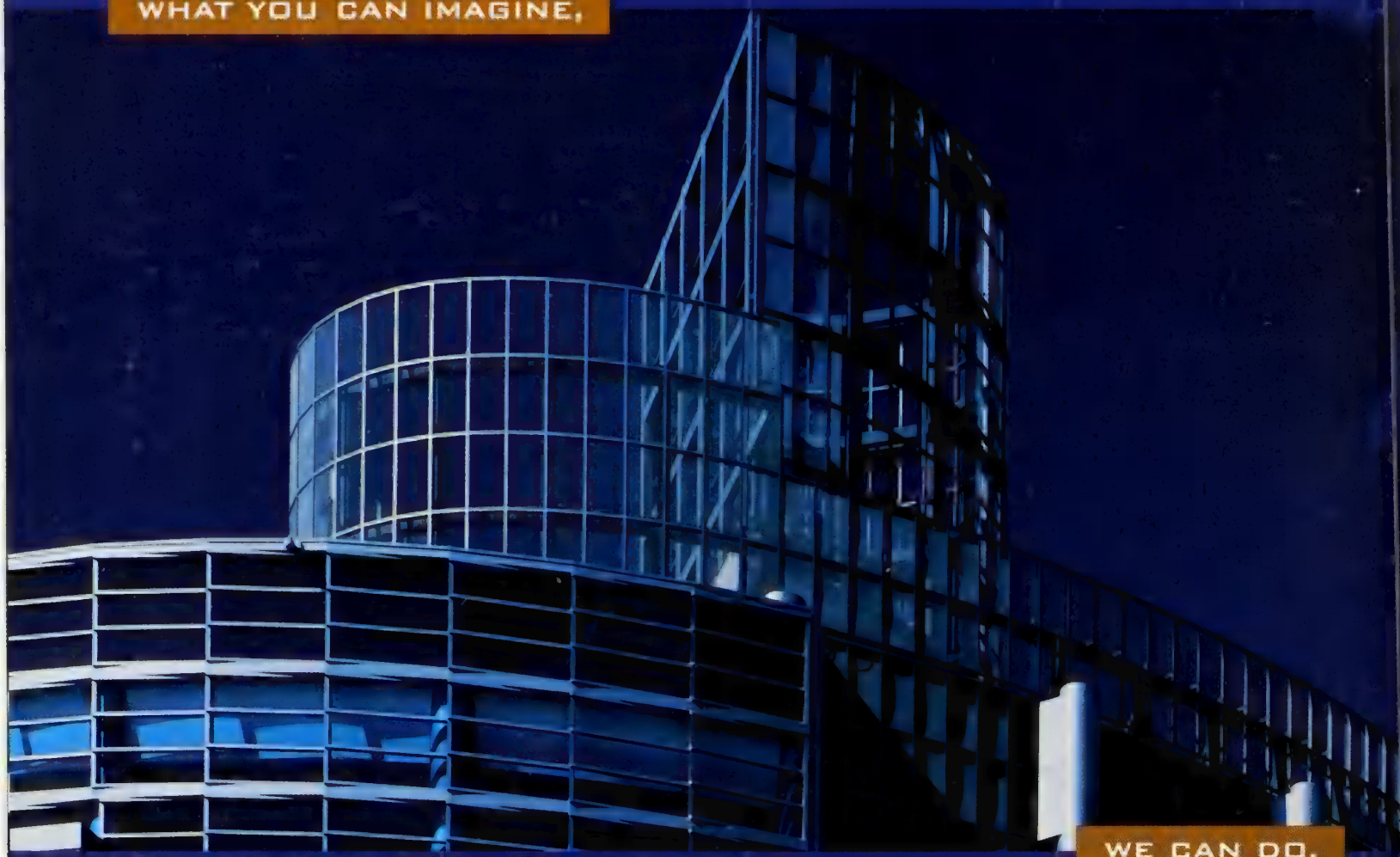
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archrecord2

FOR THE EMERGING ARCHITECT

More than anything else, passion keeps young architects going. For David Hu, featured in this month's Design profile, passion means connecting with his clients to communicate ideas about architecture. In Live, meet Eric Whiting, whose passion for cycling led him to design his own three-wheeled cycle. archrecord2 exists to display such passions and to kindle them in its readers. For more information on how to share yours, visit archrecord2 on the Web.

DESIGN

David Hu Builds a Temple of Tea



When David Hu was earning his undergraduate architecture degree in Taiwan, he learned a very important lesson about architecture. But he didn't learn it in school. He learned it in the nightclubs where he was singing with his band.

"I realized you have to learn how to understand people in order to communicate architecture to them," Hu said. "We're dealing with people who don't have a lot of time to think about buildings, so you have to work with them to bring out that interest, that desire. And then maybe you'll be able to do something that has a special life to it. But dealing with people isn't a skill they teach us in our training. The ability to listen to people that I picked up in my music days has helped me a lot."

Hu's concentration on relationships has brought him some of his best work to date, and his communication skills have produced some wildly different architecture for the same client, and even for the same client with an almost identical program.

In this case, the two Wild Lily Tearooms, both in New York City, reflect two different "moods" of tea. The first Wild Lily is in the Chelsea neighborhood and reflects a masculine aesthetic, with warm woods, brick, a lily pond, and straight lines everywhere. The newer of the two locations is a smaller storefront where Hu felt that straight lines would be too dominating. So curves became the norm, and transparent materials entered the picture. There was also no room for the signature lily pond, so Hu worked with the owner of the teahouses to come up with a compromise, an almost unseen—but not unheard, at his client's request—waterfall, that trickles behind a transparent resin wall that has tea leaves embedded in it. Shelves for tea boxes are imprinted with his client's favorite poem.

Hu started his New York practice in 1996, after several years in Taipei. It





Wild Lily Tearoom 2, New York City, 2002
David Hu Architect. An unseen fountain hides behind a resin panel that has different varieties of tea embedded within it (left). A group of shelves that hold tea boxes (above) are marked with a poem selected by the client.

(continued from previous page) was a fateful time for him. He had no clients in the U.S., though he did earn his M. Arch. at Washington University in St. Louis and was not a complete stranger to the country.

"Coming to New York was a leap of faith," Hu said. "But, you can never wait for things to happen. You have to make them happen."



Hu got his hands on an early project, the remodeling of a loft, but he was soon laid up with a stroke. "My client at the time heard that I had a stroke," Hu said, "and she said, 'Well, he's out of the picture.' I called her up, and she said, 'Can you still do it?' And I said, 'Yes, I can.' I couldn't do the sketches to the same detail that I usually could, but I spent more time with the contractor out on the site."

But Hu's leap of faith and his persistence through what he refers to as a "convergence of cosmic forces" have really paid off for him. He continues to shuttle back and forth between New York and the Far East, and has residential and commercial projects in his portfolio, as well as an interesting commission to design a temporary sales-office building for a speculative residential tower in Taiwan. And on top of that, he's designing his own chess set.

Is it something akin to fate that has Hu's career looking up, or is it his hard work? He has his own, slightly cryptic, answer: "My contractor, who's Chinese, told me—I don't know if it's a proverb or not—but he said, 'If you build a temple, the people will come to burn their incense.' " *Kevin Lerner*

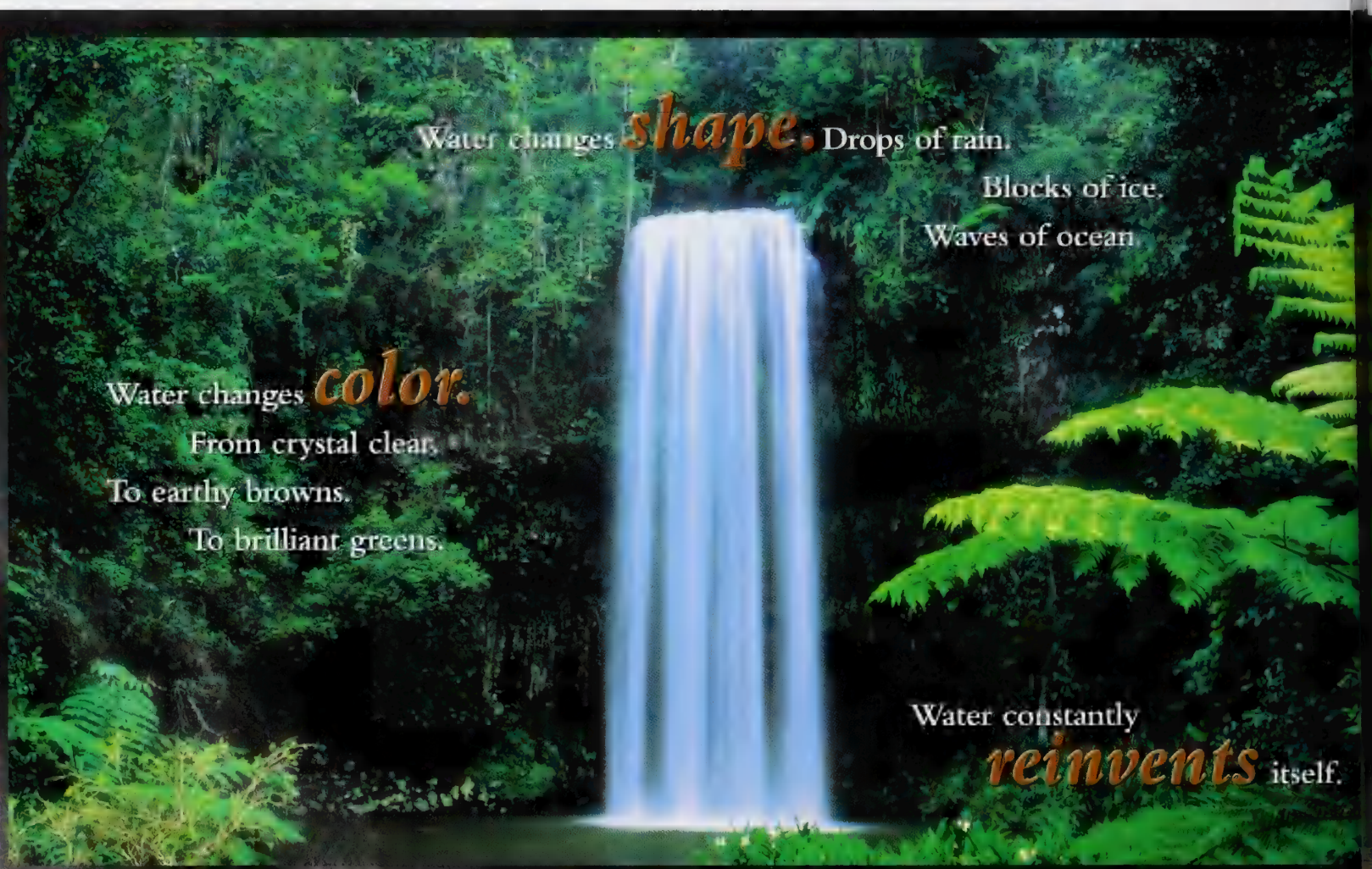
Go to architecturalrecord.com/archrecord2 for pictures of other David Hu projects, and to learn how to submit your own work for publication.



Wild Lily Tearoom 1, New York City, 1999

David Hu Architect. The original tearoom features a lily pond near the entrance, a tea bar at the end, and a variety of discrete spaces. Each table was designed to have its own unique view and environment.

PHOTOGRAPHY:



Reinventing the Three-wheeler

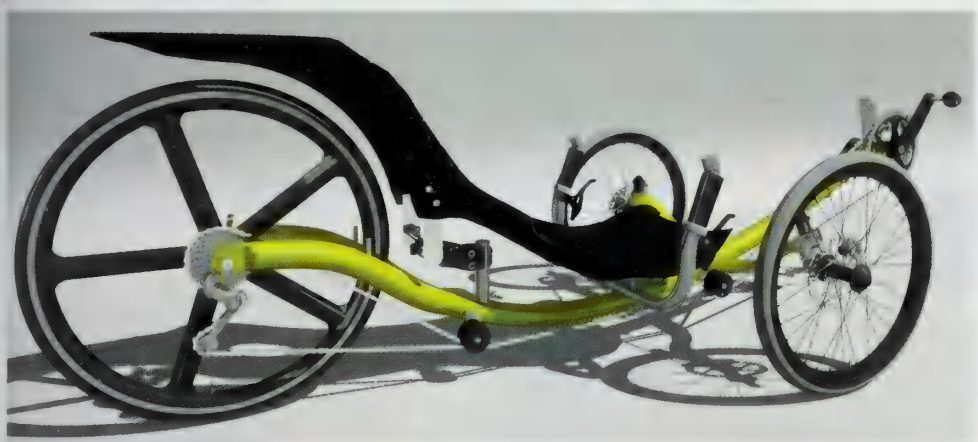
Eric Whiting, of Saratoga Associates in Saratoga Springs, New York, thinks he can probably remember every brand of bicycle he has ever owned. And if all goes well, his next could be one of his own design.

Although, of course, it won't technically be a bicycle. Whiting is working on a design for a trike, a three-wheel cycle that is ridden lying down. Recumbent cycles hold many of the speed records for human-powered vehicles, but they have been lacking in design.

"Trike design is really in its infancy," Whiting says, "since the trike has only been in evolution since the 1980s. That fact alone warrants further design study. However, with few exceptions, current recumbent cycles in production seem overengineered and lacking any emotional design input."

Whiting's skill at 3D rendering made his work on the trike (below) easier than it would be with paper and pencil. He used the same techniques to design a three-wheeled car (above). Whiting began work on the car but sold what had been built for money to continue working on the trike. The current owner plans to continue developing the car to Whiting's specifications.





RENDERING COURTESY OF ERIC WHITING

Before he even sat down to start sketching his trike, Whiting sought input from riders around the world, and the result is a trike that he can be proud to present to the international community. And building his own project has taught him the value of design efficiency.

But more than anything, Whiting has approached this project because he loves doing it.

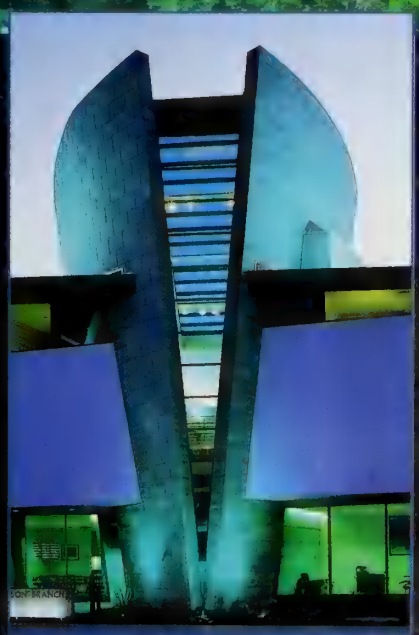
"Trikes are cool," he said. "They're like comfortable, aerodynamic, leg-powered dragsters. Besides, I guess bicycles to me are like chairs to other designers: beautiful utilitarian objects. I can't stop staring." *Kevin Lerner*

Go to *architecturalrecord.com/archrecord2* for more of what young architects do "On the Side."

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Project: Robertson Branch Library
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Rem to Earth: Resistance is futile. Just keep shopping until everything is junked

Critique

By Robert Campbell, FAIA

Does Rem Koolhaas ever go shopping? If he does, why does he always appear in public wearing the same low-fashion, black T-shirt outfit? His clothes are as unvarying as those of Jughead Jones or a monk—a figure that Koolhaas, with his closely shorn head, might find congenial. I'm told the clothes are really all Prada, the store where low style is high style, but who can tell the difference at 10 feet away?

If Koolhaas doesn't shop, why does he produce a book of 800 pages, weighing in at five and three-quarter pounds on my kitchen scale, entitled *The Harvard Design School Guide to Shopping*? The book's message is that shopping has taken over the world and now offers the only kind of public space that still exists.

Taken over the world? Well, not everyone. I don't think I'll run into Rem trying on new identities at the local Banana Republic. And the fact that I won't is encouraging. It means some of us are still able to place ourselves outside the shopping economy. It is Rem the nonshopper I admire, not the Rem who lectures us on the importance of shopping.

I was prepared to dislike this book. At first glance, it looks like a coffee-table scrapbook, overfed and underorganized, the kind of book people buy but never read—the kind of book, in fact, you buy when you're shopping for brand status rather than content, since the Koolhaas name today is a certifiable brand in architectural circles.

Nothing could be farther from the truth. This is a brilliant work, a classic of its kind, absolutely worth reading. And it isn't as intimidating as it seems. Its heft is the result of its coated stock, the better for the quality of the illustrations. And since maybe half of the book is made up of photos or charts of some kind, it's not such a lengthy read either. The prose is clear and pungent. It's a far cry from the illiterate pomposity of so much academic writing, such as what is encountered at a typical ASCA conference. Everywhere, there are fascinating facts, brilliant insights, informative graphics. The organization is odd but impeccable. The book consists of 42 essays by 15 authors. They are arranged in alphabetical order by title—a subtle riff, perhaps, on the nonhierarchical, globalized world that the book describes.

Each essay begins with a summary page on yellow paper. Each ends with footnotes, citing sources. This is not original research so much as a synopsis of published work by others, but it's a superb compendium nevertheless. The essays are cross-referenced in case you want to pursue a particular theme. Otherwise, it doesn't matter what order you read them in.

Only one essay is by Koolhaas himself, who is also listed as one of four editors. The same group of editors has also produced, almost simultaneously, an equally hefty book called *Great Leap Forward*, on development in China. Both are products of a studio led by Koolhaas since 1996 at the Harvard Design School. Called "Project on the City," the studio sends students out to study a different topic or part of the world each year. Three more books on different topics are planned so far, all to be published by Taschen.



Moscow, Houston, what's the difference? Not much in the world of shopping.

The argument of the *Guide to Shopping* is basically this: The Western market economy has taken over and turned the whole world into a shopping center. Traditional forms of public space have either been subsumed into shopping or else have been replaced by the media. Even urbanism itself is now a subset of shopping, because the city street is morphing into an outdoor mall. Madison Avenue is cited, with a photographic street elevation on which we can count 53 brand-name boutiques, making the street into what the authors call a "Brand Zone"—in other words, the brand "Madison Avenue," or even the brand "New York," becomes itself just another high-end salable. We now understand urban life as being the life of shopping. Sources for this attitude can be found in the work of Jane Jacobs and in the festival marketplaces of James Rouse. In shopping space, there is no true outdoors and no natural world. Everything, including what passes for nature, is a constructed artifact. Authenticity therefore becomes an impossibility. As one essay puts it, "In seeking to define and construct the authentic, it becomes unattainable." You can't be authentic when you're consciously creating "authenticity."

Whether you buy the book's theme or not—and I pretty much do—you'll enjoy the sidetracks. The authors delve into the history of

Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic for The Boston Globe.



Sprawl, Chinese style: A billboard tells the future in the Pearl River delta.

shopping. They investigate the invention of such essentials of shopping space as the elevator and air-conditioning. They sketch the biographies and careers of shopmeisters Jon Jerde and Victor Gruen. They print the floor plans of 64 shopping spaces, from Trajan's Market to the Mall of America and the latest Kmart, all at the same scale. It's a browser's delight.

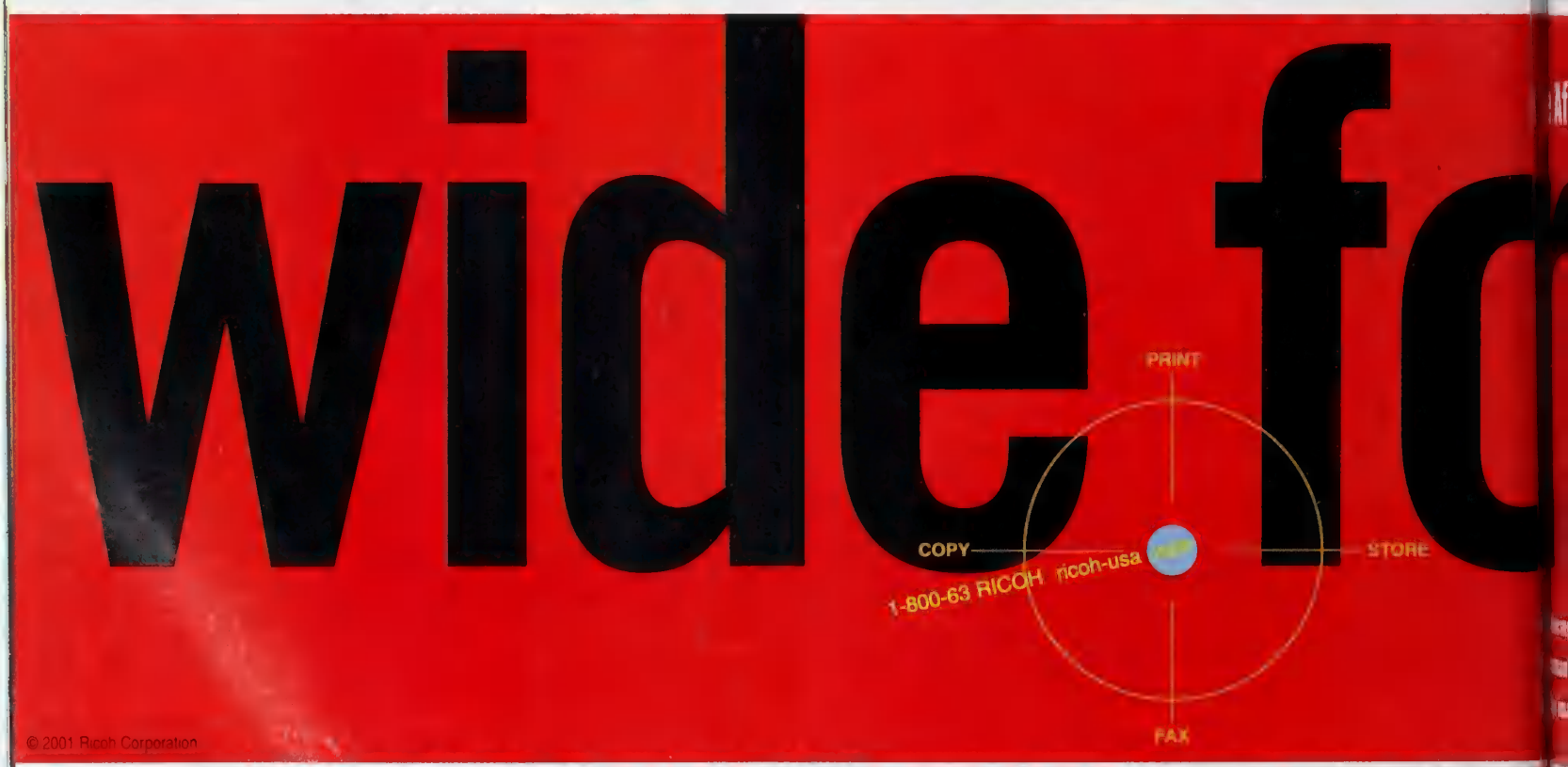
Here's a quote to suggest the flavor: "Public space as it once existed has disappeared … Instead of an occupiable, physical entity, public space has been thinned to a series of surfaces: the screen of a television, the screen of a computer, the expanse of an amplifier, the sheet of a newspaper, the leaf of a magazine, the page of a journal. As a result, public exchange occurs through the mediation of surfaces: no longer spontaneous, natural, personally experienced, or existing in time, it is deferred, impersonalized, delayed, vicarious. In its voracity to become absolute, shopping has made public space consistent with its one-dimensionality. Shopping has flattened public space."

Let them have junkspace

But the authors weren't shopping when they wrote this book. They were collaborating, probably in some "occupiable, physical entity." They're elitists with binoculars who are bird-watching the shopping world. The most amazing example is Koolhaas's own essay. Called "Junkspace," it is set in larger type than anyone else's (so what happened to the nonhierarchical format?). Koolhaas's text sounds like the furious ranting of a misanthrope on uppers. He never bothers to define *junkspace*, but we can assume it means the space of shopping. Some samples:

"Junkspace will be our tomb. Half of mankind pollutes to produce, the other half pollutes to consume. The combined pollution of all Third World cars, motorbikes, trucks, buses, sweatshops pales into insignificance compared to the heat generated by junkspace. Junkspace is political: it depends on the central removal of the critical faculty in the name of comfort and pleasure." This is the preaching of the monk in black. "At the moment of its greatest emancipation, humankind is subjected to the most dictatorial scripts: from the pushy oration of the waiter, to the answering gulags on the other end of the telephone [he means telephone trees, of course], the safety instructions on the airplane, more and more insistent perfumes, mankind is browbeaten to submit to the most harshly engineered plotline." Insistent perfume? This is a guy who truly suffers.

Or listen to this: "Junkspace is space on vacation; there once was a relationship between leisure and work, a biblical dictate [note "biblical" in this context] that divided our



weeks, organized public life. Now we work harder, marooned in a never-ending casual Friday." It all sounds like a sermon by Savonarola.

At a recent Harvard symposium, almost every speaker described the *Guide to Shopping* as "nonjudgmental." Indeed, so did Koolhaas himself. People who make value judgments, he said, are "dumb." We should write of the world as it is, not as we think it should be. We should learn, he said, not prescribe. Well, so we should. But value judgments are impossible to avoid, and Koolhaas certainly doesn't avoid them.

Calling people who make value judgments dumb is, as we all know from high school, just a way of being cool. Maybe his posture of cool is what makes the Koolhaas persona so appealing to students. But the Koolhaas of "junkspace" is more like their nagging parents. He's totally uncool. He's furious at the sinful, lazy world he and his colleagues have researched so diligently. *Delirious New York*, take a cold shower. This is the Koolhaas I like.

Shopping till we drop

I read another book about the same time I was reading the *Shopping Guide*. Both are brilliant. Both books give you the impression that they are talking about the whole world. Yet the world of one book never even appears in the other.

The second book is E. O. Wilson's *The Future of Life*. Wilson is a biologist and his book is an intensely felt warning about the danger to our planet. The biosphere, that thin blanket of life that coats the earth, is disappearing. Species, both plant and animal, are becoming extinct at appalling rates. The earth's ecosystem, says Wilson, is far too complex to be replaced by any future human genetic engineering. We will never recover the loss. He suggests we leave the following message to posterity:

We bequeath to you the synthetic jungles of Hawaii and a scrubland where once flourished the prodigious Amazon forest … Accept our apologies and this audiovisual library that illustrates the wondrous world that used to be.

What links these two books is a simple fact: It is precisely the activity described in the *Guide to Shopping* that is creating the disasters described in *The Future of Life*. The Amazon rain forest, and all the species for which it is sole habitat, is disappearing because the land is being converted to grazing for cattle in order to make hamburgers. The shopping world is devouring the rest of the world in a quite literal way.

I remember a student, far back in the 1970s, saying of his design project, "At least it's relevant." He didn't say relevant to what. In those days, *relevant* was a buzzword, and the buzzword was enough. No doubt he meant relevant to some social issue. Of course, he was being silly. But it occurs to me that this is something you would never hear from a student today. Nobody talks about architecture as "relevant."

The literary critic Northrup Frye once made a useful distinction. He was talking about literature but could have been talking about architecture. He said literature is two things: It is playful and it is ethical. It is about creating wonderful aesthetic form, and it is also about understanding life and reflecting on values. Both aspects must be present.

When we look at a work such as Frank Gehry's Guggenheim Museum in Bilbao, it's easy to see we're in a great era for the playful side of architecture.

But we're at a low ebb on the ethical side. The planet is at risk. Architects should respond. Our "junkspace" is one of the culprits. So is the heedless, resource-consumptive, cancerlike spread of human-development sprawl worldwide. If anyone can, architects should be able to understand these issues.

Despite an unconvincing chapter on companies that market themselves as ecologically responsible, Koolhaas's book fails to make the seesaw connection between the rise of the world of shopping and the fall of the world of nature. But you can tell he's worried. ■

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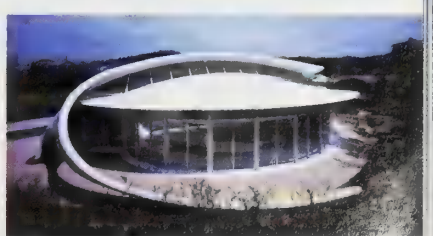
Snapshot



By Jane F. Kolleeny

Kasahara bows in service to the community

Looking like a friendly octopus hugging a little ship in the sea, Kasahara Amenity Hall presents a disarming invitation to the surrounding community it serves. Designed by Ushida Findlay Architects, whose work reflects a synthesis of the Japanese and Scottish cultural backgrounds of its partners, the building's extraordinary form resulted from an imaginative response to its function, combined with site considerations and climate. Located in Gifu Prefecture, Kasahara is a bedroom community on the perimeter of Nagoya, Japan, which is cold and dry in winter and hot and humid in summer. This small industrial town of about 3,000 is known among Japanese builders for its tile products, used liberally in this building. Indeed, the exterior, wraparound, undulating surface of the building is inlaid with small, circular ceramic tiles, which easily accommodate the organic, curvaceous form of the building.



In contrast to its polluted and industrial environs, the hall is a landmark of sustainable architecture. According to Kathryn Findlay, "It explores a new morphology based on the unseen energy of climatic conditions." This has

resulted in a fascinating design. Conceived in response to the sun's movement across the sky, the project is described by the architect as "self-regulating." It modulates heat for warmth in winter and protection from high temperatures in summer. The protective arm shades the building from the sun, and a peripheral gap around the roof allows rain to enter and wash down the walls, cooling the interior. A masonry wall in back of the building regulates solar gain, holding it or blocking it depending on the weather.

A wide range of community activities take place at Kasahara—funerals, weddings, classes, meetings, performances. Consequently, the plan resembles a micro-organism with smaller cells to house the diverse uses. The nucleus is the main gathering hall, which is shaded by a shallow half-hat roof exposing a crescent-shaped clerestory, allowing light and the path of the sun to mark the tile floor inside. Maximum sun penetration occurs on the winter solstice, at noon on December 21, when it is most needed. Says Findlay, "These features make use of the invisible forces of nature." ■





The undulating exterior of the building is inlaid with small, circular ceramic tiles from the local factory (top). A crescent-shaped clerestory in the main gathering hall allows light and the path of the sun to mark the tile floor inside (left).



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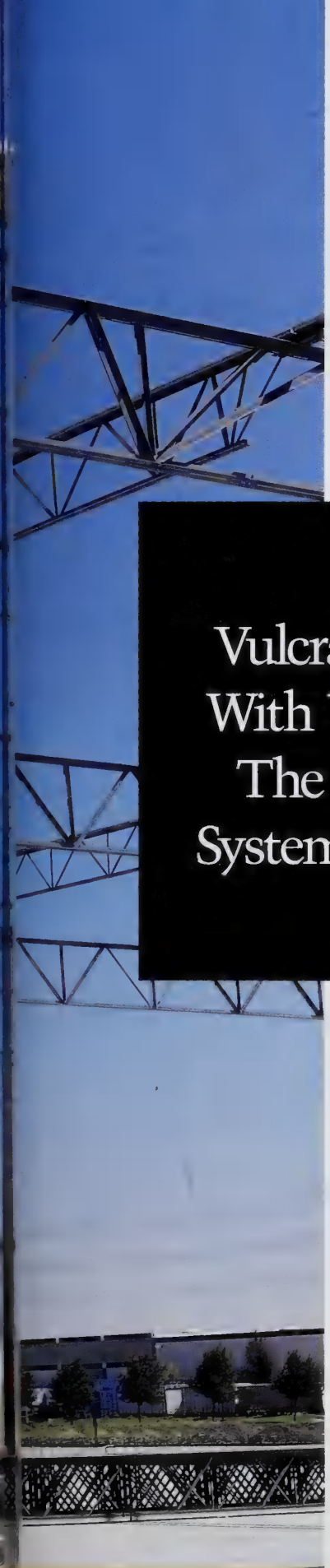
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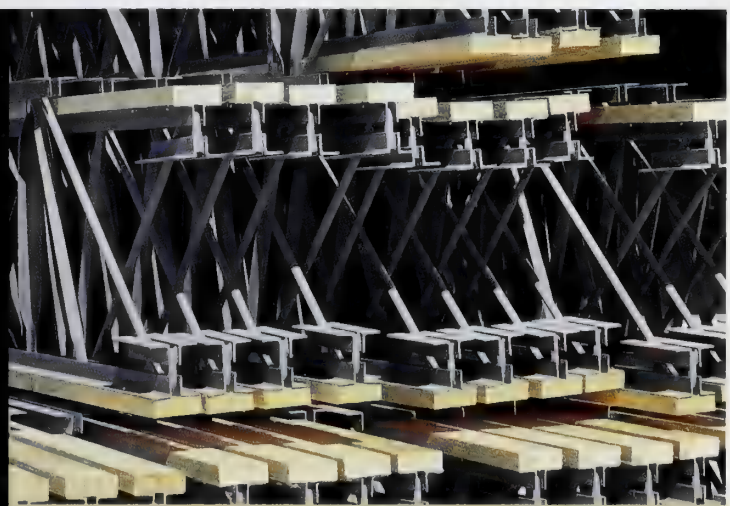
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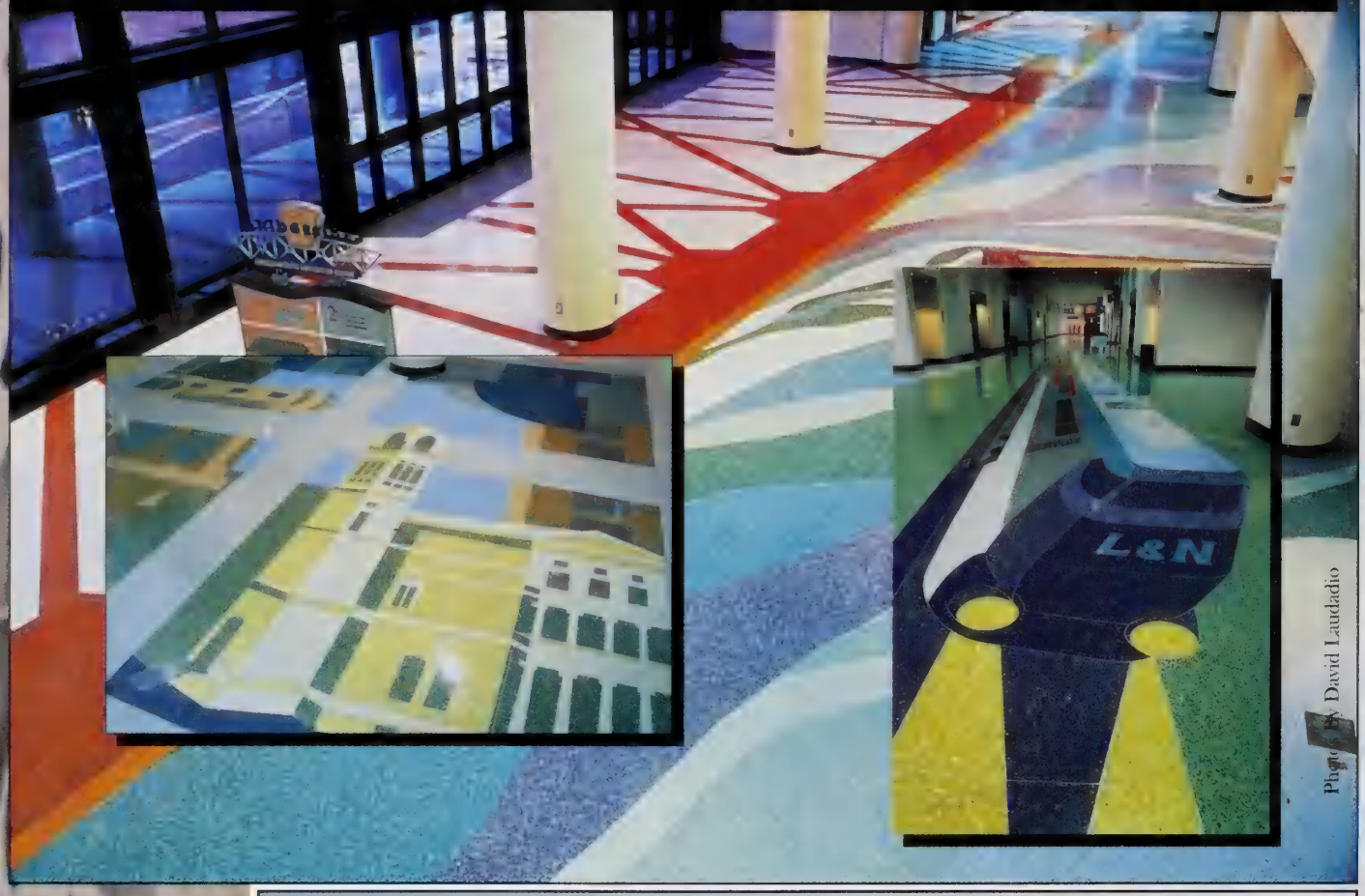


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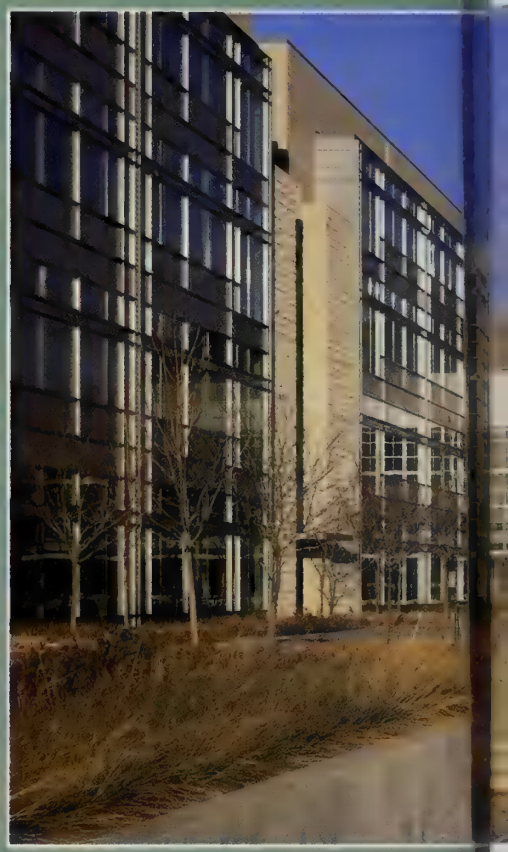
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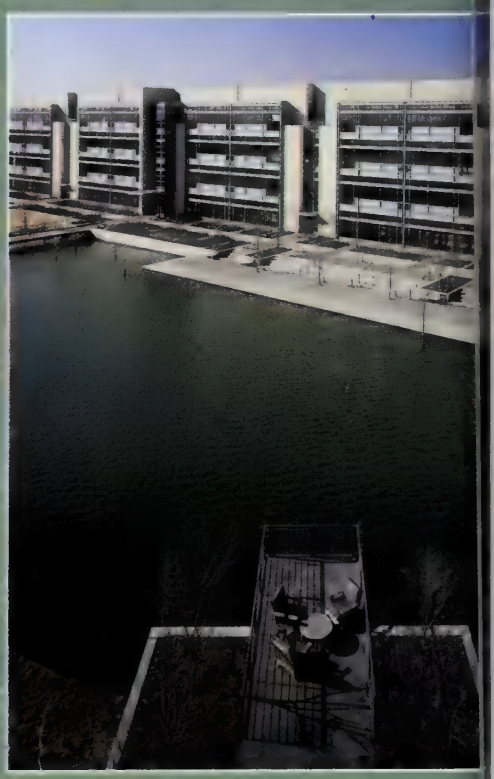
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A pedestrian bridge spanning a lake completes the ground-floor circulation loop that links all buildings of the Ericsson campus.





1. Employee access
2. General parking
3. Wetlands
4. Garden courts
5. Future amphitheater
6. Existing lake
7. New lake

Innovation in Dallas



Ericsson's Swedish sensibilities influence the design of its Texas headquarters to create a workplace infused with freshness

By Francis Duffy

One of the many striking contrasts between the contemporary architectural scene in Europe and the U.S. is that Europeans often import American architectural practices to design large office buildings because commercially minded Europeans believe that American architects know everything there is to know about office design—while Americans tend to import European architects to design art galleries and museums, presumably because everyone on this side of the Atlantic assumes that European architects know all about culture. Why Europeans (with the interesting recent exceptions of Renzo Piano and Norman Foster) are not supposed to be able to design office buildings, and American architects arts centers, is a mystery to me. Nevertheless, it is in exactly this way that old roles and outdated stereotypes are perpetuated—yet another reason why innovation is so hard to achieve in architecture today.

For once, something has changed, and in office design—a field of architecture that has become particularly formulaic and predictable in this country. From the evidence that meets the eye, it is easy, and only slightly unfair, to imagine that most architectural practices that design offices in the U.S. have been brainwashed into believing that the office-design problem has been cracked, that the rules are fixed for all time, and that all offices should be the same. And yet, amazingly, in Dallas—that facsimile of SimCity in a desert of banal commercialism—an exemplary and highly innovative office building has recently been completed, a building so fresh and humane that it makes the conventions that govern North American office design look bankrupt and obsolete.

The rare success of this office building raises many questions about the conditions under which innovation was achieved. Why should any client wish to do anything new in Dallas, where there is so much land and money, so little time, and even less patience? Is this innovative project an isolated freak, the result of some foreign eccentricity, or a whim of the great? Did it take longer than usual to design and build? Did money do the trick? Was there anything different about the briefing and the design process? What was so special about the business objectives that this remarkable project was intended to address?

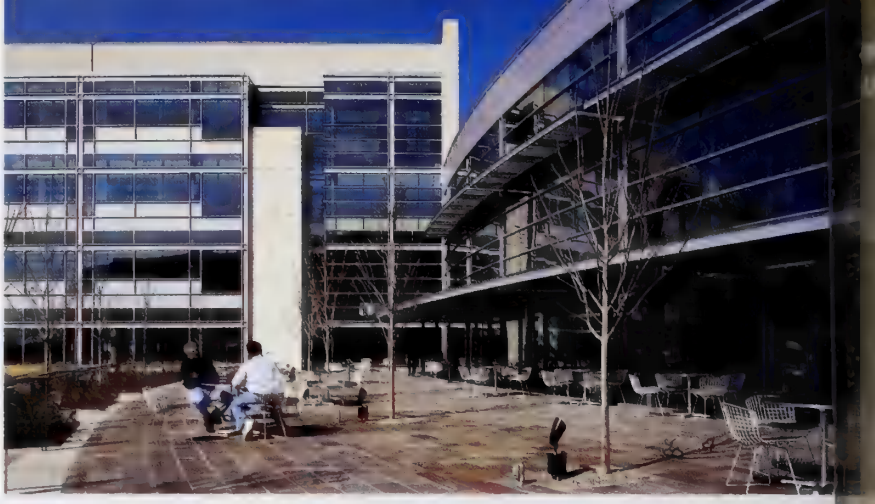
I shall attempt to answer these questions. But I should say at the outset, as a commentator on international office design, that the most hopeful feature of all, and one that goes against most clients' habitual overdependence on local contacts and established track records in choosing an architect, is that this innovative office project, the North American headquarters of the Swedish telecommunications giant Ericsson, has been designed by a relatively little known American architectural practice, Thompson Vaivoda & Associates (TVA), which is based in Portland, Oregon.

Francis Duffy is a founder of DEGW, an international consultancy and design practice. He is a past president of RIBA and of the Architects' Council of Europe.

What makes Ericsson Village different?

Imagine the approach on the freeway driving north out of Dallas toward Plano—the big sky, the endless distances, the increasingly spaced-out alternation of flashy, self-aggrandizing office structures and even more attention-grabbing shopping malls. Farther away are the instant-housing subdivisions: gray boarding, synthetic-slate pitched roofs, formulaic, indistinguishable. Right across from the Ericsson site is a three-story developer's office building of the most conventional sort—brash; squatting on the landscape, without any concession to place, site, view, or aspect; introverted; deep in plan; mean in construction; clueless in design.

Ericsson Village is exactly the opposite. There is little attempt to grab attention. The site is what matters—it is large: 110 acres, of which about 11.5 acres are wooded and much of the rest wetlands. The first impression is the excellent landscaping, which has taken advantage of the existing water table to restore the delicate ecology of the mid-Texas plain. Only after appreciating the landscaping do you begin to understand how skillfully this large, first-phase structure (500,000 square feet accommodating customer facilities and 1,700 Ericsson staff) has been slipped onto the site. Entry to the building is at second-floor level, so much of its bulk is hidden. The two-story customer center (which is also the main visitor entry point) acts as a hinge linking two four-story wings (or "bars," as the architects call them) of office space. The bars of offices face each other at an angle across a restored lake, over which a delicate, Japaneselike footbridge joins the farther ends of the office wings to complete the site's main pedestrian circulation loop. The facades are a mixture of a beautiful, tawny local stone and a simple grid of gray metal and glass.





A double-height gallery, or pedestrian street (right and above), connects buildings at the ground floor. Casual meeting areas provide comfortable seating and great views of the lake (below).

Superior design quality is already very evident. On entering the building, three other major divergences from conventional office design become apparent. The first is that, amazingly, your location is completely obvious no matter where you find yourself throughout the entire building. To achieve this, the architects took advantage of the falling site that made it possible to enter at the second-floor level and created two double-height main circulation routes that face each other across the lake (honoring the "village" metaphor by really feeling like streets). The second big difference from common practice is that light floods across the big office floors (approximately 140 feet across: 45,000 square feet in the southern office bar and 65,000 square feet in the northern one). External views are accessible to everyone—a feat made possible by lots of glazing; by keeping the walls around workplace cubicles as low as possible; by consistently locating the small, glass-fronted, enclosed office rooms (exactly the same footprint as the cubicles) strictly in the middle of the three zones that structure the floor; and, most importantly and unusually, by locating primary, on-floor circulation routes right up against the building's glassy perimeter.



So far, so functional. The third difference from the banality of the conventional office interior is more purely visual. It is what used to be called architecture: the skillful interplay of structure, materials, aspect, daylight, and color. The interior spaces in both the customer center and the office bars are layered in a most subtle way. Grandiosity is avoided. No space is made too big. The scale always feels right. All the interior spaces interpenetrate and interconnect. Architecture and interior design—and,

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Meeting niches located along the pedestrian street are equipped with glass white boards for both chance and planned interaction (left). Employees are encouraged to use the campus dining area as an alternative workspace (below).

indeed, landscaping—complement one another, so that the strong, fair-faced concrete structure, the views, the clever lighting, the stone paving of the streets, the light wood finishes, and the bright fabrics combine to create a working environment that seems to radiate charm and sunlight, come rain or shine, day or night.

The physical fabric of the Ericsson head office creates an exceptionally attractive acoustical environment, as well. Not only does the place look right, it also sounds right—busy, alive, stimulating. This is a rare office interior that both looks and feels as if it has been designed, not by office furniture manufacturers for facilities managers, not by architects for architectural photographers, but by sensitive designers for intelligent, demanding knowledge workers.

Designing the process

How did it happen? Ericsson is a Swedish company, design-aware, self-conscious, and protective of its brand. Hence, it is not entirely surprising—although rather unusual for a European company operating in North America (unlike Americans abroad, European companies in the U.S. are generally content to follow local standards and practice)—that there is a Scandinavian directness and freshness throughout the design. Certainly, Ericsson's Swedish chief in-house architect and design manager, Helena Hambraeus, took a personal interest in the project at all stages of its development, not least because it was a major opportunity to apply Ericsson's new workplace model. However, in many respects this is by no means a typical Northern European building planted randomly in Texas. The main office floors, for example, are at least five times deeper, glass to glass, than is customary in most contemporary Northern European office buildings. Not only are those buildings generally narrower than their North American counterparts, but they are also more expensive—not least because, more often than not, they are more cellular and much more environmentally responsive, with, for example, chilled ceilings, floor-based displacement air-conditioning, as well as climate-modifying external skins.

Such narrow building depths and such elaborate environmental systems are a function of two factors: expensive energy and much more demanding and empowered end users. Given Texan habits and environmental extremes, they must have seemed to Ericsson in this case to have gone a step, or indeed two steps, too far. More positively, it is quite clear that Ericsson deliberately went out of its way to instruct the architects to respond to local conditions, not just in the shaping of the floor plates but also in the selection of materials and the design of the landscaping. All this is a deliberate part of the Swedish multinational's determinedly extranational management style.

Equally important in shaping this building was the process by which the building was designed. The manager who conceived this process is John Brownrigg, Ericsson's director of real estate in North America. Over a period of 10 years, Brownrigg's team conducted feasibility studies, chose the site, justified the project in economic terms, assembled the design team, and managed the interface with the users. BOSTI Associates, a workplace consulting firm based in Buffalo, played a critical part in surveying users and establishing an empirical basis for a program of work methods and general needs. Brownrigg's business case for Ericsson's new building in Dallas was, first, to economize by releasing many scattered sites and properties in order to concentrate as much of Ericsson's Dallas operations as possible in one main site and, second, to use this financial opportunity to facilitate a corresponding movement within the company toward a more rationalized and coordinated managerial structure.

For a variety of internal and external reasons, rationalization was slow and complicated, but one fortunate consequence was the close working relationship that Brownrigg built with an Ericsson consultant, Bill Adams, of Program Management, an office consultancy firm in Dallas. Adams, trained as an architect, acted throughout the entire U.S. headquarters consolidation program as an adviser to Brownrigg and the



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Stockholm-based real estate unit on strategic planning and property matters (and continues in this capacity). It was Adams and Hambraeus together, who, despite—or perhaps because of—the experience of two previous false starts for the project, were able to quickly deploy a sophisticated international architectural sensibility to help Brownrigg through a third and final architect-selection process. An eye-opening series of nationwide visits to architects' offices (and to their completed buildings), plus competitive sketch designs prepared in a parallel commission of four firms, resulted in the surprising appointment in January 1999 of TVA, an outstandingly talented but out-of-state architectural practice, to lead the design effort, supported by Gideon Toal, a local Fort Worth firm. Immediately after this appointment, Brownrigg, again working with Adams and Hambraeus, organized building-team visits to significant Ericsson office projects in Northern Europe, an experience that proved critical in communicating Ericsson's subtle corporate culture to the newly appointed designers. Despite extensive programming and change management, design was completed and construction started by December 1999. The first of the 1,700 occupants began to occupy the completed building in February 2001.



Resisting conventional pressures

How did Brownrigg protect his newly appointed design team from the influence of financiers, developers, development consultants, and design-and-build operators, all of whom must have been anxious to get their hands on the building to make it conform to conventional office real estate norms? Ericsson is unusual. Unlike most contemporary businesses, it does not regard real estate as a noncore and undesirable overhead. Brownrigg, as Ericsson's director of real estate in the U.S., was in the fortunate, and somewhat unusual, position of being able to justify a purpose-built building because of the obvious real estate and operational efficiencies gained by consolidating so many scattered premises.

He was doubly lucky to be working within a culture that regards the office environment as a powerful stimulant to improving the effectiveness of the business. Innovation was encouraged in Dallas because ERA, Ericsson's new streamlined real estate unit, had recently chosen to pursue a worldwide initiative to use the design of office settings to achieve concrete business objectives, to break down departmental barriers, use information technology to encourage mobility, improve interaction between all parts of the business, promote transparency and knowledge sharing, attract and retain customers and staff, and provide the infrastructure needed for them to work together in rapidly changing teams on complex, shared, open-ended problems.

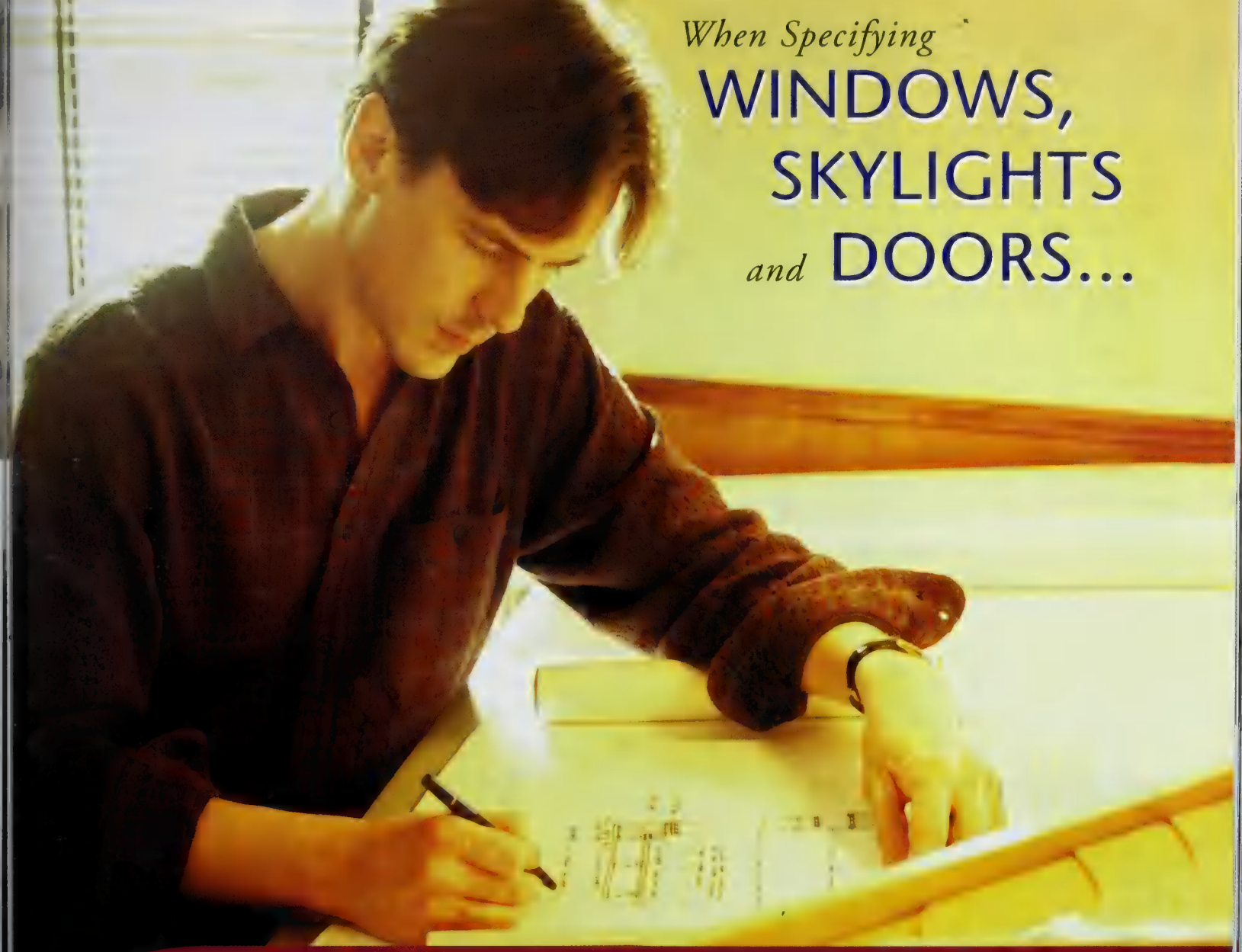
Brownrigg was also in a position to do something even more unsettling from the point of view of conventional real estate practice. With his own particular position, skills, and experience, he was able to rethink the whole building-delivery process in ways that sharply cut costs. Although a construction manager was appointed, no profits or fees were paid to a real estate broker, developer, project manager, cost estimator, quantity surveyor, or change manager. Brownrigg arranged to finance the entire project off the balance sheet and demanded no extra in-house staff apart from those resources provided by the design team.



Each office floor has its own mini café (above). The "Living Room" (left) contains furnishings specifically chosen to connect the visitor to the company's global brand.

What he did was all too rare. He treated the headquarters project as if it were exactly the same as any other large Ericsson in-house project—such as the development of a new product or the launching of a new marketing campaign. Achieving success was not a mysterious process needing expensive outside expertise. Success depended solely on the exercise of superior managerial rationality.

To achieve this program, Brownrigg and his project manager, Joe Corcoran, an architect, had to communicate Ericsson's business culture to the design team. They also had to communicate the same messages internally to Ericsson's staff in Dallas, especially because, during the whole period of design and construction (from 1999 to today), the telecommunications industry was *(continued on page 74)*



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INNOVATION IN DALLAS *(continued from page 72)* experiencing severe turbulence. Ericsson's top management team changed several times, leaving Brownrigg and his team with an especially tough job of driving through a strategic and challenging project.

Even given this market and managerial context, considerable credit must be given to TVA. From the first project meeting, the firm adopted a confident, open, and inclusive approach to hold together and challenge the full design and construction team. They had no interest in the passive, undemanding, limited, and frustrating role that so many architects, especially in office design, have sadly become used to. They were equally quick to reach out to the users, as were the Lauckgroup, the Dallas interior design firm selected to translate Ericsson's workplace model and clear brand image into detailed space plans and interior design concepts for the main office floors.

Sources

Project: *Ericsson North American Headquarters, Dallas*
Architect: *Thompson Vaivoda & Associates Architects—David P. Gellos, AIA, design principal; Clint Cook, project architect; Anthony Burke, project manager*
Associate architect: *Gideon Toal—Randy Gideon, FAIA, principal in charge; J. Bruce Benner, AIA, project manager; Greg Ibanez, AIA, project architect*
Interior design: *Lauckgroup—Brigitte Preston, design principal; Ted Kollaja, AIA, project manager*

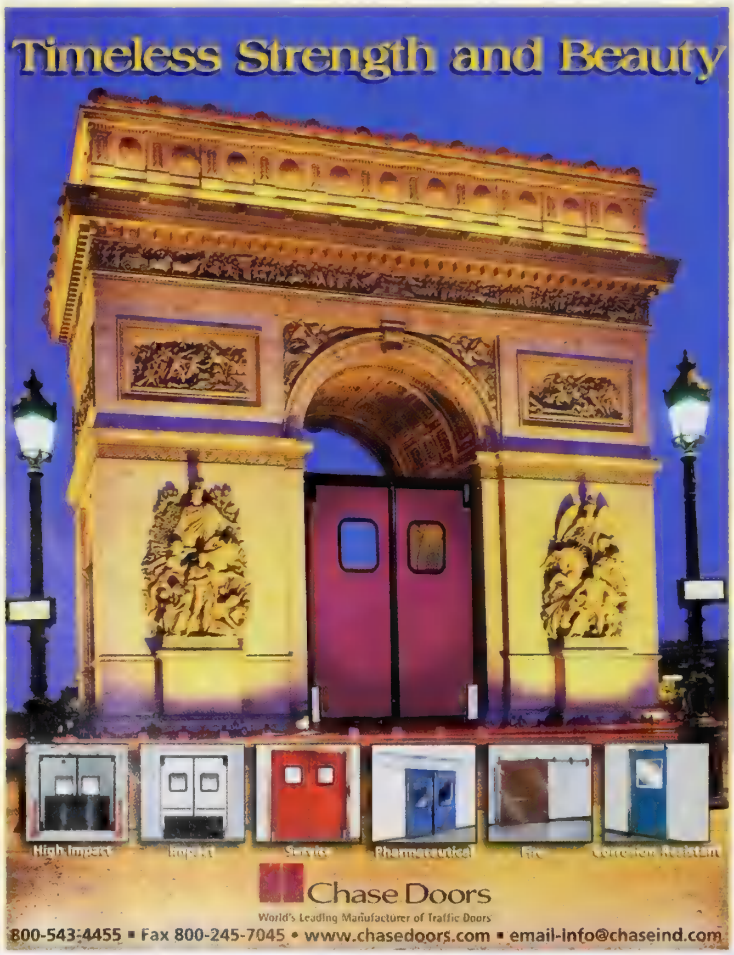
Removing barriers to innovation

Ericsson Village is refreshingly different from conventional low-rise offices in four key physical respects: sensitive siting and landscaping; clarity of circulation; deep floor plates that provide light and views for everyone; and varied interior spaces that are neither too grand nor too mean. It sounds easy, doesn't it? Without resorting to major architectural fireworks, the building rivals the business and human advantages—interconnectedness, transparency, sense of place, aspect—of the best contemporary European office buildings, such as the British Airways Waterside Headquarters near Heathrow (architect: Nils Torp) and the new Nokia Headquarters in Finland (architect: Helin & Siitonen). In both of these projects, the big spatial and organizational idea is also a central interconnecting street, but the architectural resources deployed to achieve this are much more complex.

In the context of the U.S., this innovative Ericsson project is a particularly cheering exception to the generally low level of contemporary office design This is not to say that there is nowhere further to go. In some respects, such as the exploitation of sustainable environmental systems, greater use of wireless technology, and other new ways of working, there is still plenty of scope for development.

The project serves to make a much more fundamental point: Failure to innovate may be due to more insidious causes than simply lack of money or time. While such failures are certainly not the result of any inherent shortage of design skills, many architects have become mesmerized by the notion that office buildings are an inert commodity to be provided, within a formula, by the square foot, at the cheapest price. Clients have also lost sight of a great opportunity: Designed properly, an office building is a business tool, a powerful device to share knowledge and generate wealth. Architects and clients have allowed themselves to be bamboozled by two industries, construction and real estate, that are largely driven by supply-side pressures and deliver what they like to deliver, not what any human being would ever dream of wanting.

Reversing this situation is not easy. Ericsson Village proves that only by escaping from conventional procurement and project-management processes can a breakthrough in the design of working environments occur. Following the conventional procurement route is not only a guarantee of banality; it may also be the ideal recipe for commercial sclerosis. ■



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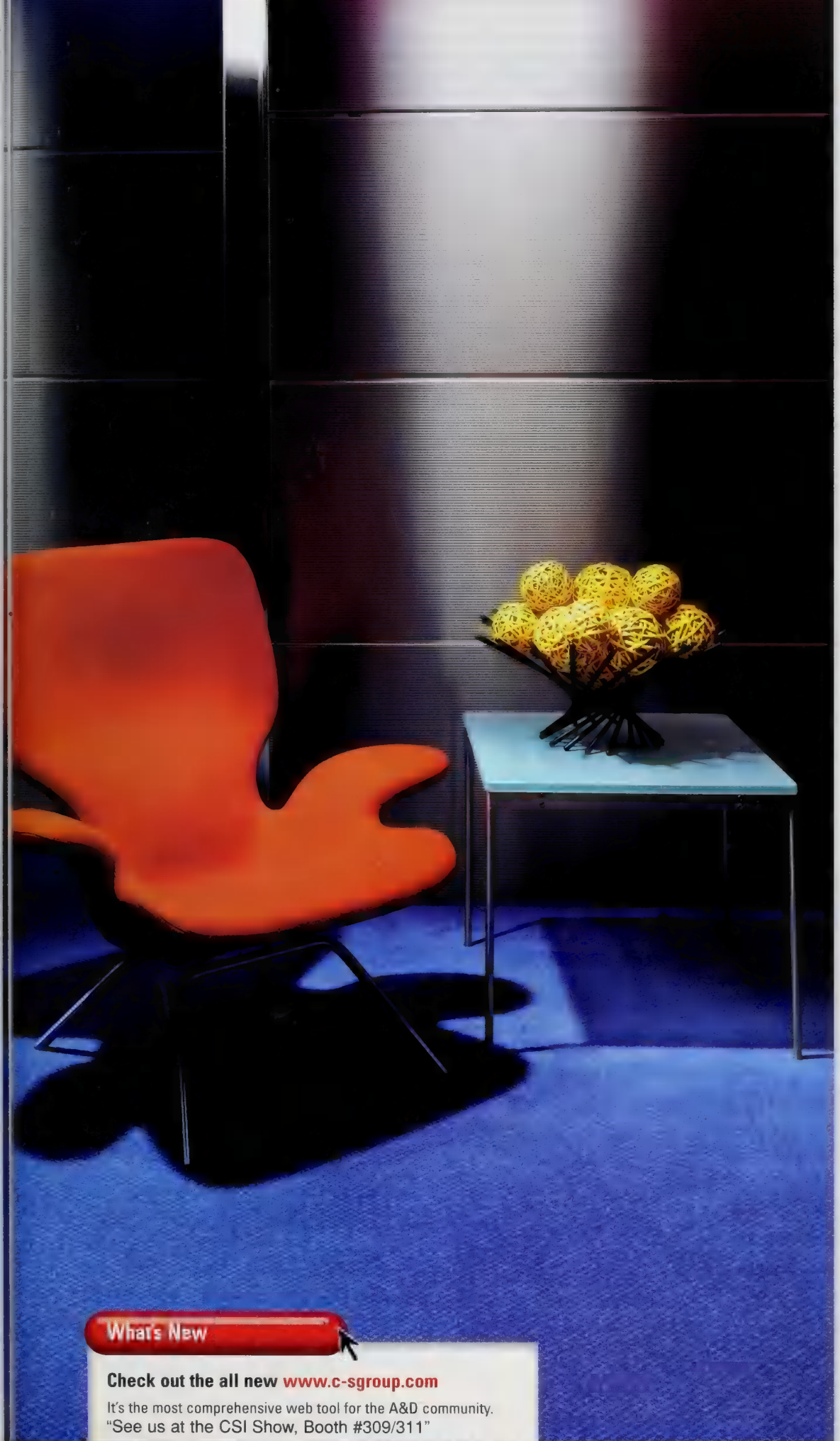
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Small, medium, and large
Size Affects Firm Culture

By Jane F. Kolleeny and Charles Linn, FAIA

Architecture firms often forget the importance of their organization's culture, which is the sum total of the human qualities that characterize a firm: the teams, small or large, of human beings working together. "It is one of the most significant signals a firm sends to the outside world," says Frank Stasiowski, of PSMJ Resources. Is yours a dynamic and outspoken or a quiet and studied culture? Is it corporate and slick, or modest and familylike? Is it casual or formal, young or old, large or small? Culture determines how firms behave as organizations: whether they are satisfying places to work, what kinds of projects they pursue, and who their clients will be. It is "the environment that reflects the values, commitments, and interpersonal attitudes of the people in the organization. Effective culture draws out and aligns peoples' skills and energies toward the goals of the firm and contributes to synergy that elevates individual talents," says Hugh Hockberg of the Coxe Group. In Part II of our series on firm size, we examine three areas where size has a direct bearing on culture: worker satisfaction, firm organization, and the relationship between size and the design-and-profitability equation.

Firm culture as a source of worker satisfaction

Firm managers are the architects of their office culture. They must design a work environment, coordinate its parts, and provide the comforts that will engender the goodwill necessary to encourage staff to maintain the high levels of energy and creativity required to serve clients. Architects' work is mentally taxing, with enormous potential for liability, and it demands long hours. Providing commensurate benefits to counterbalance the stress of work is essential.

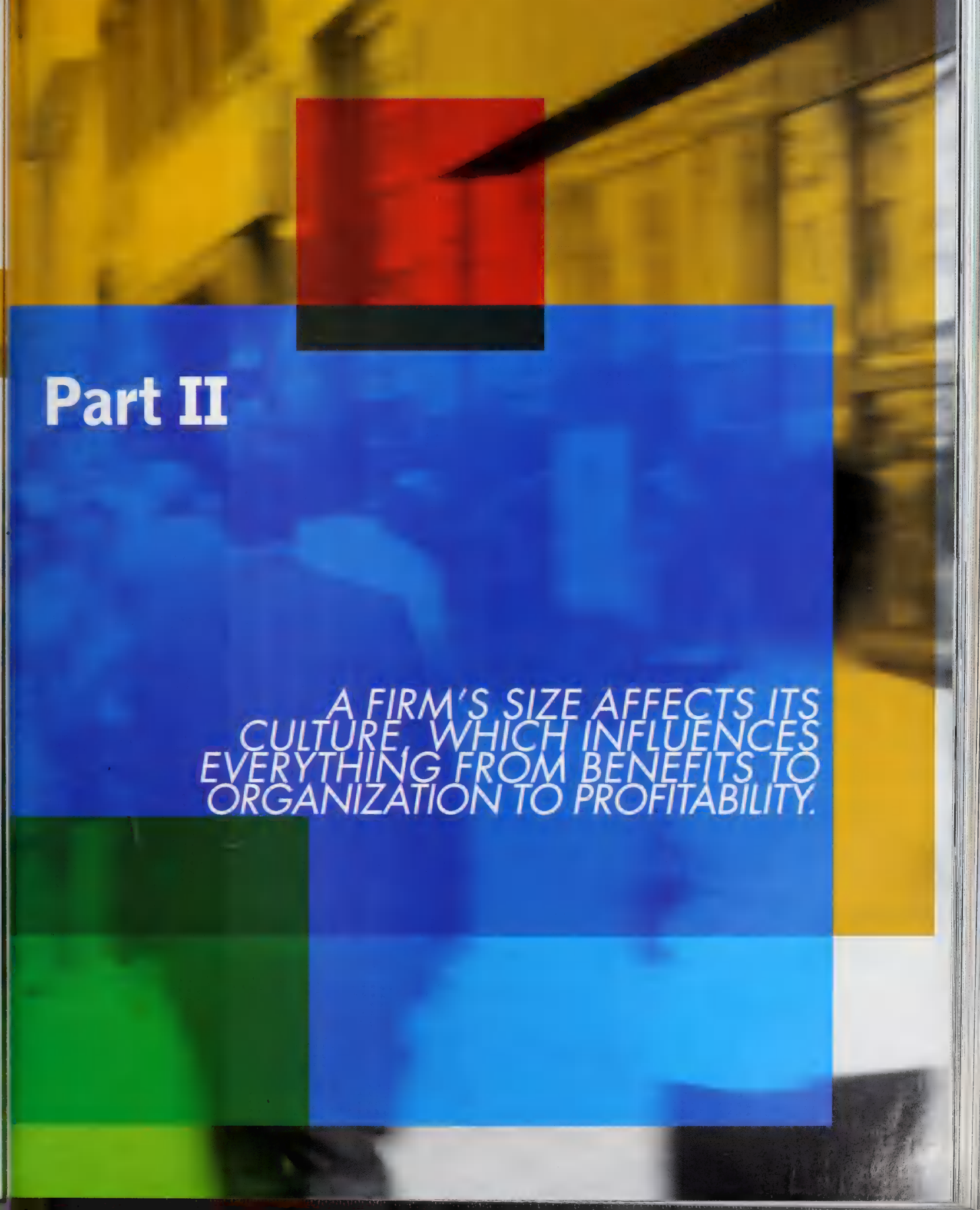
According to *How Firms Succeed*, a recently published book by James P. Cramer and Scott Simpson, prospective employees want to work in firms whose culture offers recognition and reward for their talents; elders and mentors to work with and admire; and adequate opportunities for growth.

For young architects, the variety of tasks is one of the most rewarding things about small office culture. According to Robin Donaldson, AIA, of Shubin + Donaldson, in Culver City, California, with 12 employees, "We compete with the bigger companies for talent but offer the advantage of being in a small office where staff work on all phases of projects, not being just the 'stair-detail guy.' " Smaller firms are often unable to pay the salaries large firms can, but graduates, in particular, accept this as a worthwhile trade-off in jump-starting their careers and finishing their education in a well-rounded fashion.

Firms like AC/2 Studio, in New York City, with five employees, and Randy Brown Architect, Omaha, whose firm varies from four to 12, have both found that younger architects are less focused on benefits. Jim C. Childress, FAIA, of Centerbrook Architects, Centerbrook, Connecticut, with 75 employees, concurs. "Younger people without families tend to be more interested in income and paid time off."

By the same token, one of the advantages of the culture of large firms is that they have the resources to offer their employees valuable in-house educational opportunities. Hellmuth, Obata + Kassabaum (HOK) in St. Louis, with 1,850 employees; Harley Ellis, in Southfield, Michigan, with 313 on staff; and RTKL, in Baltimore, with 750 employees, all offer their own "universities." RTKL hired John McRae, former dean of the School of Architecture at Mississippi State University, to head up its program. In most cases, these curricula evolve from informal in-house seminars and intern-development programs to highly structured programs that often allow AIA continuing-education units to employees. These programs focus not just on architectural know-how, but leadership development, project management, marketing and business, and related disciplines, such as interior design, landscape architecture, and art.

Some firms have upped the benefits ante even further than the standard 401K plans and bonuses. Centerbrook Architects offers a travel

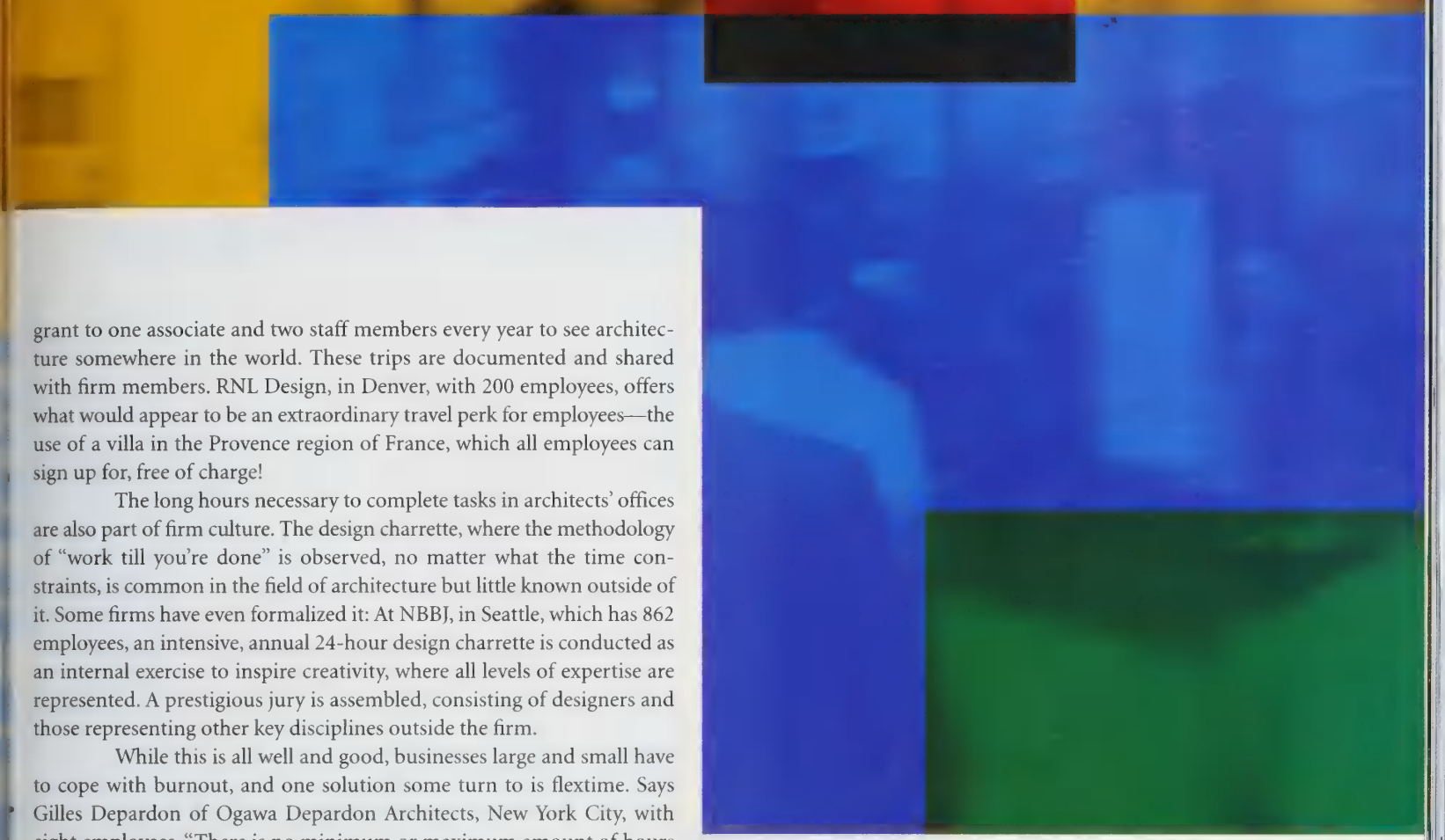


Part II

A FIRM'S SIZE AFFECTS ITS CULTURE, WHICH INFLUENCES EVERYTHING FROM BENEFITS TO ORGANIZATION TO PROFITABILITY.

Of the 52 firms that submitted data for the following confidential chart, about one-quarter did not provide financial information on their firm. The designation "NG" means "not given" and appears in those fields where information was not provided.

	SIZE OF FIRM	MULTIPLIER	PRINCIPALS' SALARY	ASSOCIATES' SALARY	ENTRY-LEVEL SALARY	MARKETING DIRECTOR/ COORDINATOR SALARY	CFO/ACCOUNT-MANAGER SALARY	IT DIRECTOR'S SALARY	% REVENUE FOR FINANCE/HR	% REVENUE FOR MARKETING/PR	% REVENUE FOR IT	BENEFITS	MBE/WBE	% MINORITY	% WOMEN	TYPE OF FIRM: DESIGN, SERVICE, FACILITY TYPE, OTHER	ORGANIZATION: BY STUDIO, PROJECT TYPE, PRINCIPAL, OTHER
FIRM 1	SMALL	NG	$60,000	NG	$34,000	NG	$40,000	NG	8%	10%	2%	BONUSES, AIA DUES, STUDY FOR LICENSURE	NO	25%	30%	DESIGN	STUDIO
FIRM 2	SMALL	2.7	$70,000	NG	$40,000	NG	NG	NG	NG	NG	NG	BONUSES, PROFIT SHARING, 401K, HEALTH	WBE	50%	10%	DESIGN	PRINCIPAL
FIRM 3	SMALL	2.5	$75,000	$45,000	$35,000	NG	NG	NG	10%	10%	5%	BONUSES, 401K, HEALTH	NO	0	60%	DESIGN, SERVICE	STUDIO
FIRM 4	SMALL	1.5	$75,000	$60,000	$30,000	NG	NG	NG	10%	10%	NG	BONUSES	WBE	0	90%	DESIGN, FACILITY TYPE	PROJECT TYPE
FIRM 5	SMALL	3.25	$75,000	$60,000	NG	NG	$45,000	NG	5%	NG	5%	BONUSES, 401K, AIA DUES	WBE	10%	60%	NG	NG
FIRM 6	MEDIUM	2.5	$85,000	$70,000	$40,000	NG	$53,000	NG	1.50%	5%	1%	401K, HEALTH, PROFIT SHARING AIA DUES	NO	14%	22%	DESIGN, FACILITY TYPE	NG
FIRM 7	MEDIUM	1.67	$88,000	$70,000	$32,000	$36,000	NG	$47,000	2%	10%	4%	401K, AIA DUES, STUDY FOR LICENSURE	NO	10%	38%	DESIGN	PROJECT TYPE
FIRM 8	SMALL	3	$90,000	$60,000	$40,000	NG	NG	NG	1%	NG	NG	BONUSES, 401K, HEALTH	NO	NG	NG	DESIGN	PRINCIPAL
FIRM 9	SMALL	2.2	$90,000	$60,000	$40,000	$60,000	$80,000	$45,000	10%	3.5%	5%	BONUSES, 401K, STUDY FOR LICENSURE	NO	50%	60%	DESIGN	STUDIO
FIRM 10	MEDIUM	1.4	$90,000	$75,000	$34,000	$65,000	$58,000	NG	7%	5%	3%	BONUS, PROFIT SHARING, HEALTH, 401K, AIA DUES	WBE	25%	44%	SERVICE	PRINCIPAL
FIRM 11	EXTRA LARGE	1.8	$90,000	$60,000	$44,000	$70,000	$99,000	$90,000	1%	1%	1.20%	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES	NO	NG	NG	DESIGN	STUDIO
FIRM 12	EXTRA LARGE	NG	$90,000	$70,000	$37,600	NG	NG	NG	1.17%	6%	3.55%	BONUSES, 401K, AIA DUES	NO	24%	36%	DESIGN, FACILITY TYPE	STUDIO
FIRM 13	LARGE	1.2	$92,000	$58,000	$32,000	$45,000	$40,000	$55,000	3%	1.50%	$120K PER/YR	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES	NO	2%	36%	SERVICE, FACILITY TYPE	STUDIO
FIRM 14	LARGE	NG	$95,000	$75,000	$35,000	$80,000	$80,000	$95,000	5%	5%	2%	BONUSES, PROFIT SHARING, HEALTH, 401K, AIA DUES, STUDY FOR LICENSURE	MBE	NG	NG	NG	PROJECT TYPE PRINCIPAL
FIRM 15	EXTRA LARGE	1.75	$99,000	$75,000	NG	NG	NG	$86,000	3%	4%	1%	BONUSES, PROFIT SHARING, HEALTH, 401K, AIA DUES, STUDY FOR LICENSURE	MBE	7%	28%	DESIGN	MARKET
FIRM 16	SMALL	2.5	$100,000	$74,000	$38,000	NG	NG	$38,000	10%	10%	15%	BONUSES, HEALTH	NO	14%	50%	DESIGN	PRINCIPAL
FIRM 17	MEDIUM	2.5	$100,000	$75,000	$36,000	$40,000	$50,000	NG	2.50%	5.40%	2.40%	BONUSES, PROFIT SHARING, 401K, AIA DUES	NO	11%	33%	DESIGN	NG
FIRM 18	LARGE	3.15	$100,000	$80,000	$40,000	$85,000	$125,000	$85,000	20%	5%	5%	BONUSES, PROFIT SHARING, HEALTH, 401K, AIA DUES, STUDY FOR LICENSURE	NO	12%	33%	DESIGN	STUDIO
FIRM 19	EXTRA LARGE	3	$115,000	$65,000	$50,000	$80,000	$90,000	$75,000	1.50%	3%	2%	BONUSES, PROFIT SHARING, HEALTH, 401K, AIA DUES, STUDY FOR LICENSURE	NO	22%	35%	DESIGN	PROJECT TYPE
FIRM 20	EXTRA LARGE	3	$117,500	$67,100	$37,750	$109,500	$135,500	$137,750	2%	5%	2%	BONUSES, PROFIT SHARING, 401K, AIA DUES	NO	20%	36%	DESIGN, SERVICE, FACILITY TYPE	REGIONAL OFFI MARKET, SERVI
FIRM 21	SMALL	3	$120,000	$60,000	$38,000	NG	NG	NG	NG	2.50%	NG	401K, STUDY FOR LICENSURE	NO	0	25%	DESIGN, SERVICE	NG
FIRM 22	MEDIUM	1.5	$120,000	NG	NG	$80,000	NG	NG	2%	3%	4%	BONUSES, PROFIT SHARING, 401K, AIA DUES	WBE	25%	50%	NG	STUDIO
FIRM 23	LARGE	1.6	$122,000	$74,000	$30,500	$52,000	$70,000	$52,000	NG	5%	2%	BONUSES, 401K, HEALTH, AIA DUES	NO	4%	42%	SERVICE, DESIGN, FACILITY TYPE	PROJECT TYPE, SERVICE, PRINC
FIRM 24	SMALL	1.85	$125,000	$65,000	$30,000	$44,000	NG	NG	NG	5.50%	2%	BONUSES, PROFIT SHARING, 401K, HEALTH BENEFITS	MBE	10%	45%	DESIGN	PRINCIPAL
FIRM 25	EXTRA LARGE	1.25	$125,000	$85,000	$35,000	$70,000	$150,000	$95,000	1.40%	14%	1.30%	BONUSES, PROFIT SHARING, 401K, AIA DUES, STUDY FOR LICENSURE	NO	15%	29%	SERVICE	MATRIX BY PRO TYPE, DISCIPLIN
FIRM 26	EXTRA LARGE	3.1	$129,285	$70,659	$37,750	$75,000	$90,000	$78,000	8%	10%	NG	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES	NO	11%	32%	SERVICE	STUDIO
FIRM 27	MEDIUM	NG	$130,000	$60,000	$32,000	$25,000 (PART-TIME)	NG	NG	1%	0.50%	0.25%	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	15%	40%	DESIGN	STUDIO
FIRM 28	EXTRA LARGE	NG	$140,000	$95,000	$34,000	$70,000	$120,000	$80,000	1.50%	2.50%	5%	BONUSES, 401K, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	35%	45%	FACILITY TYPE	STUDIO
FIRM 29	SMALL	1.5	$145,000	$70,000	$50,000	$55,000	$55,000	NG	4%	6%	2%	BONUSES, PROFIT SHARING, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	20%	40%	DESIGN	STUDIO
FIRM 30	MEDIUM	2.8	$150,000	$65,000	$32,000	$65,000	$65,000	$37,000	2.50%	3%	1%	BONUSES, PROFIT SHARING, HEALTH, 401K, STUDY FOR LICENSURE	NO	10%	35%	DESIGN, SERVICE, FACILITY TYPE	STUDIO
FIRM 31	SMALL	2.75	$150,000	$45,000	$30,000	NG	$75,000	NG	0.50%	15%	15%	BONUSES, 401K, HEALTH	MBE/WBE	40%	50%	DESIGN	PRINCIPAL
FIRM 32	SMALL	NG	$150,000	NG	$30,000	$40,000	$50,000	$40,000	5%	3%	3–4%	BONUSES, PROFIT SHARING, 401K, HEALTH	NO	15%	15%	DESIGN	STUDIO
FIRM 33	MEDIUM	1.56	$195,000	$80,000	$35,000	$75,000	$65,000	$46,000	12%	15%	5%	BONUSES, 401K, PROFIT SHARING, STUDY FOR LICENSURE	MBE/WBE	20%	40%	DESIGN	PRINCIPAL
FIRM 34	LARGE	2.8	$500,000	$82,400	NG	$68,000	$100,000	$92,500	2.20%	5.70%	4.90%	BONUSES, PROFIT SHARING, 401K, AIA DUES, STUDY FOR LICENSURE	NO	1.30%	36%	DESIGN	PRINCIPAL
FIRM 35	MEDIUM	2.5	$150,000	$85,000	$32,000	$85,000/ $45,000	$65,000	$65,000	2%	0.50%	NG	NG	NG	NG	NG	NG	NG
FIRM 36	SMALL	NG	NG	NG	NG	NG	NG	NG	1%	1%	0.50%	BONUSES, HEALTH, 401K	NO	0	0	DESIGN	PRINCIPAL
FIRM 37	LARGE	2.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	BONUSES, 401K, HEALTH, AIA DUES, STUDY FOR LICENSURE	WBE	5%	35%	DESIGN, FACILITY TYPE	PRINCIPAL
FIRM 38	LARGE	1.9	NG	NG	NG	NG	NG	NG	2.50%	3%	1%	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	0	28%	DESIGN	PROJECT TYPE
FIRM 39	LARGE	2.75	NG	NG	$35,000	NG	NG	NG	2%	5–6%	4%	BONUS, 401K, AIA DUES, STUDY FOR LICENSURE	NO	NG	NG	DESIGN, SERVICE	PRINCIPAL
FIRM 40	LARGE	NG	NG	NG	NG	NG	NG	NG	NG	NG	3.50%	HEALTH, PROFIT SHARING, 401K, AIA DUES, BONUSES	NO	0	NG	NG	NG
FIRM 41	LARGE	1.5	NG	NG	NG	NG	NG	NG	2%	9%	4%	BONUSES, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	NG	NG	DESIGN	PRINCIPAL
FIRM 42	EXTRA LARGE	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	BONUSES, PROFIT SHARING, 401K	NO	28%	13%	NG	DISCIPLINE
FIRM 43	LARGE	3.27	NG	$57,000	$32,000	$80,000	$60,000	$80,000	2%	9%	4%	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES	NO	10%	38%	DESIGN	CASE BY CASE
FIRM 44	EXTRA LARGE	NG	NG	NG	NG	NG	NG	NG	1.80%	2.10%	1.70%	HEALTH, 401K, PROFIT SHARING, AIA DUES	NO	22%	42%	NG	STUDIO,PROJECT
FIRM 45	EXTRA LARGE	NG	NG	NG	NG	NG	NG	NG	3.30%	2.75%	6–8%	BONUSES, PROFIT SHARING, 401K, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	32%	33%	DESIGN, SERVICE, FACILITY TYPE	DISCIPLINE, STUD
FIRM 46	SMALL	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	MBE/WBE	50%	50%	DESIGN	PRINCIPAL
FIRM 47	EXTRA LARGE	NG	NG	NG	NG	NG	NG	NG	14%	16%	9%	BONUSES, 401K, HEALTH, AIA DUES, STUDY FOR LICENSURE	NO	NG	NG	DESIGN, SERVICE	NG
FIRM 48	SMALL	3.2	NG	$60,000	NG	NG	NG	NG	5%	NG	0.50%	401K, HEALTH, AIA DUES	NO	0	0	NG	STUDIO
FIRM 49	SMALL	1.45	NG	NG	NG	NG	NG	NG	1%	1%	NG	BONUSES, 401, HEALTH, AIA DUES	NO	NG	41%	DESIGN	NG
FIRM 50	EXTRA LARGE	2.5	NG	NG	$33,500	NG	NG	NG	4.80%	8%	9%	BONUSES, 401K, AIA DUES	NO	13%	34%	DESIGN	PROJECT TYPE
FIRM 51	EXTRA LARGE	NG	NG	NG	NG	NG	NG	NG	9%	6%	5%	BONUSES, PROFIT SHARING, AIA DUES	NO	41%	31%	DESIGN	PROJECT TYPE
FIRM 52	MEDIUM	NG	NG	NG	NG	$50,000	NG	NG	NG	1.5%	NG	BONUSES, 401K	WBE	30%	40%	DESIGN	STUDIO



grant to one associate and two staff members every year to see architecture somewhere in the world. These trips are documented and shared with firm members. RNL Design, in Denver, with 200 employees, offers what would appear to be an extraordinary travel perk for employees—the use of a villa in the Provence region of France, which all employees can sign up for, free of charge!

The long hours necessary to complete tasks in architects' offices are also part of firm culture. The design charrette, where the methodology of "work till you're done" is observed, no matter what the time constraints, is common in the field of architecture but little known outside of it. Some firms have even formalized it: At NBBJ, in Seattle, which has 862 employees, an intensive, annual 24-hour design charrette is conducted as an internal exercise to inspire creativity, where all levels of expertise are represented. A prestigious jury is assembled, consisting of designers and those representing other key disciplines outside the firm.

While this is all well and good, businesses large and small have to cope with burnout, and one solution some turn to is flextime. Says Gilles Depardon of Ogawa Depardon Architects, New York City, with eight employees, "There is no minimum or maximum amount of hours per week within reason as long as the work gets done. We have found this type of arrangement allows employees to take responsibility and be more productive." HOK offers a slightly more complicated flextime plan where "days can be used for time away from work, used to reduce the cost of other benefits, or invested in the 401K plan," says Bill Valentine, president. NBBJ's definition of employee fatigue takes into account its long-term effects: In divvying up vacation time, they count the total number of years employees have been working professionally, including experience they accrued before coming to the firm.

As competition for qualified staff has heated up and graduates from architecture schools have become scarcer (see Part III of this series in our August issue), benefits have increased in importance: They keep staff happy and motivated and establish a sense of empathy between management and employees. While benefits were often cited by our surveyed firms as one of the costliest overhead expenses, and put a particularly tough burden on small and medium-size firms, it may well be that good benefits plans are more cost-effective than the training and recruiting necessary for frequent turnover.

REWARDS FOR HARD WORK AND EXTRA HOURS SHOULD BE A PART OF ANY FIRM'S OFFICE CULTURE.

Size and culture shape firm organization

As we have seen, architects choose to work in large or small offices in order to achieve career goals. Firm principals also choose to keep their practices a particular size to gain the advantages of a specific culture. For example, Suman Sorg, of Sorg & Associates, is the sole designer for her Washington, D.C., firm of about 30 staff members. The size of her firm is directly proportional to her ability to oversee the design. Her reputation as an excellent designer, the award-winning projects she completes, and the familylike atmosphere of her firm have attracted young employees. They get the chance to experience everything from production drawings and cost estimating to contract administration. But, some will probably move on after a few years so they can progress on their own, which is an economic burden to the firm. This is the trade-off Sorg is willing to accept to maintain design control.

In a way, the tale of this firm is a paradigm for the ways in which size affects the culture of any firm, large or small. The decision to keep the size small influences how closely the principal can control design, which employees do what jobs, and what kind of projects the firm takes on, both in terms of building type and scale. While analyzing the results of our firm survey, we observed that large firms frequently organize themselves in ways that allow them to function as multiple small or medium-size businesses under one roof. This enables workers to enjoy responsibility and autonomy, while principals can retain control over the design product as well as reap the benefits that come with a large firm's economies of scale. It is even possible for activities like marketing, budgeting, bill collecting, and human resources to operate with some autonomy within

these modest-size units. In *How Firms Succeed*, Cramer and Simson quote anthropologist Robin Dunbar. Dunbar says that business units in large organizations that exceed 150 persons do not function efficiently or create manageable social relationships. At Microsoft, units are kept to 200 maximum. Dunbar goes on to state that the architectural firms they analyzed limited their unit or studio sizes to between 12 and 15 persons (although in our surveyed firms we've seen studio sizes as large as 30 to 60 that work well).

Over the past 20 or 30 years, firms of all sizes have been exploring different ways to organize themselves to maximize their talent and respond in the most efficient fashion to the needs of clients. Typically, firms have evolved from the "matrix" system—with intersecting, discipline-based groups governed by flat layers of management that separate design, production, and contract administration—to the "studio" system, in which staff follow a project from beginning to end under the guidance of one leader or leadership team. Our surveyed firms have shown an almost infinite number of variations on these types of organizational structure.

Joan Blumenfeld, principal at Swanke Hayden Connell Architects of New York City (300 staff) defines the matrix system as "one where resources are allocated from an entire organization on an as-needed basis. Often employees wind up working on more than one project at once and may have multiple managers to report to. This can cause conflicts of interest and a lack of accountability and direction in the work flow. Also, in a matrix system, it is hard to meet changing deadlines because leaders have to share personnel and can't easily reassign them according to need." These problems seem to be endemic to the matrix system, no matter what size the firm, yet many firms use it because when the work flow is uneven, it is easier to shift people around to keep them busy.

Many of our surveyed firms cited the strengths of the studio system, including the clients' desire to work with the same people throughout a project, the advantages of minimizing learning curves, and the sense of community that small groups engender. Others acknowledge that the studio system has its challenges. Philip Goedert, president and C.E.O. of RNL Design, says, "The studio can be too territorial and competitive, challenging in terms of consistent staffing. Studio leaders who must balance their time between marketing and managing often compromise both."

Herbert Lewis Kruse Blunck Architecture, in Des Moines (47 staff), has discovered the value of horizontal, integrated organization and encourages its staff to "swallow their egos," according to partner Rod Kruse, FAIA. Rico Cedro, AIA, of Krueck and Sexton, in Chicago, with 14 employees, says, "Large clients expect an organizational model similar to their own." It isn't always easy to do this, given the relatively modest size of most architectural firms, as compared to some corporate and institutional clients.

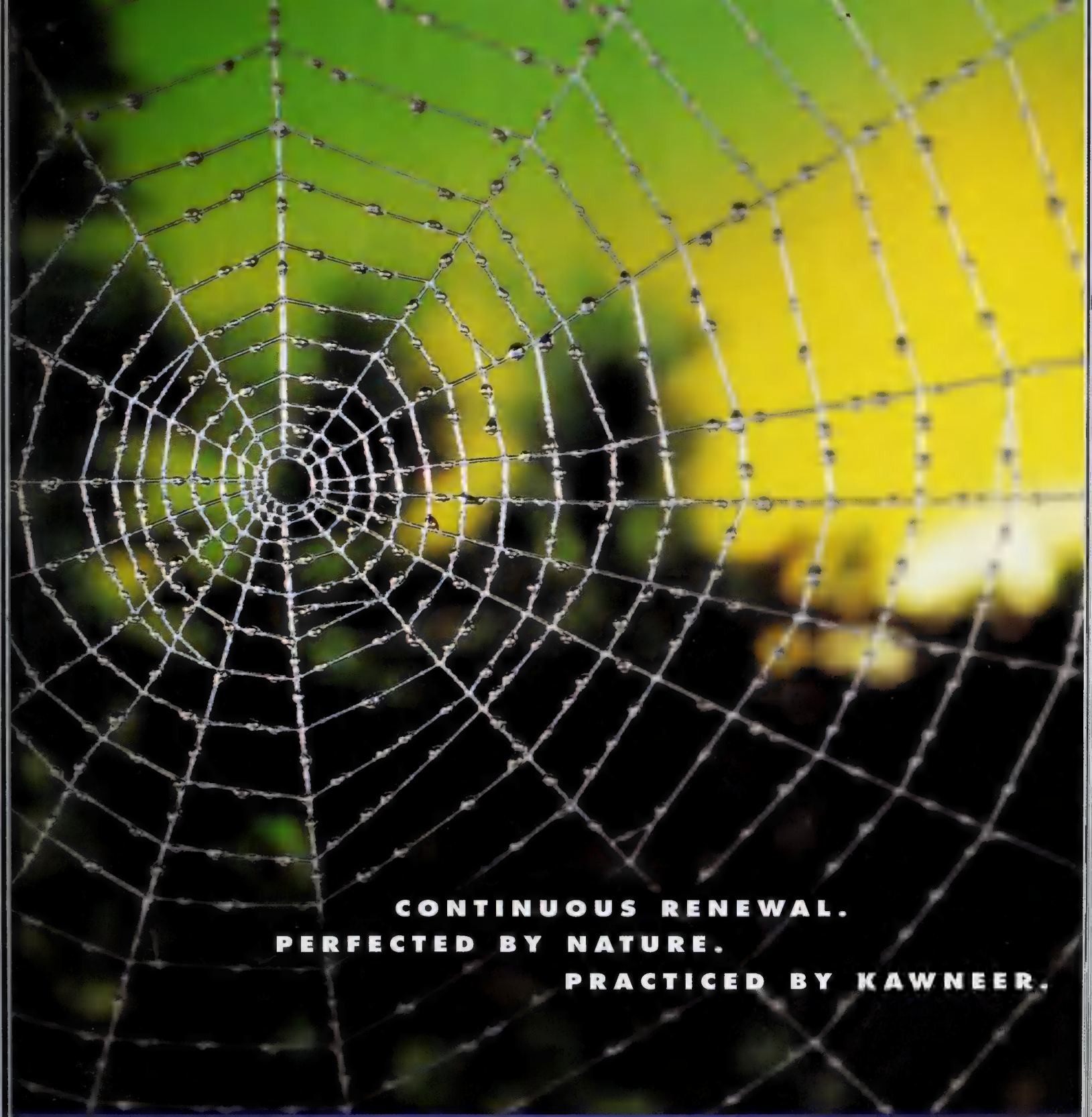
Dennis M. King, FAIA, principal and corporate chairman of Harley Ellis, in Southfield, Michigan, with a staff of 313, says that being so large has limitations involving the balancing of talent, management of human resources, and sharing of resources. "Our firm utilizes a hybrid of the studio system with the flexibility and responsiveness available from a matrix structure." It has core teams that stay with a project, and a cadre of more fluid support staff ready to join teams at critical times where increased manpower or technical know-how is needed.

Gruzen Samton, in New York City, with 135 employees, is not organized by studio but is divided by market. Each sector has a partner in charge and staff that frequently work together. "This enables our marketing efforts to be focused without being inflexible and allows staff to work for multiple market sectors. Simultaneously, certain teams are in place that cultivate a rapport that deepens on every given project," says Meredith Berman, marketing director.

Many firms use a third organizational type, the principal-in-charge (PIC) model. Teams are assembled from studio personnel as needed and there are no "star" designers, although there may be a "design principal." This model is common in firms that once had a single, charismatic principal who created, nutured, and controlled the firm. The model caught on and has changed only as new principals assumed leadership throughout a firm's history. Because the PIC's role in operations and decision making is so pivotal, the number of operating partners often determines the size of the firm.

LARGE FIRMS ORGANIZE THEMSELVES TO REGAIN THE BENEFITS THEY ENJOYED WHEN SMALL.

At Lohan Associates, in Chicago, with a staff of 65, Floyd D. Anderson, AIA, says, "Our principals are 'hands-on' in all aspects of the business. If we were larger, principals could spend more time working on their projects while a C.F.O., business development staff, and HR staff could spend their time running these aspects of the business." At Perkins Eastman Architects, in New York City, with a staff *(continued on page 240)*



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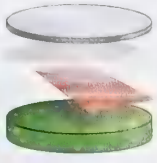
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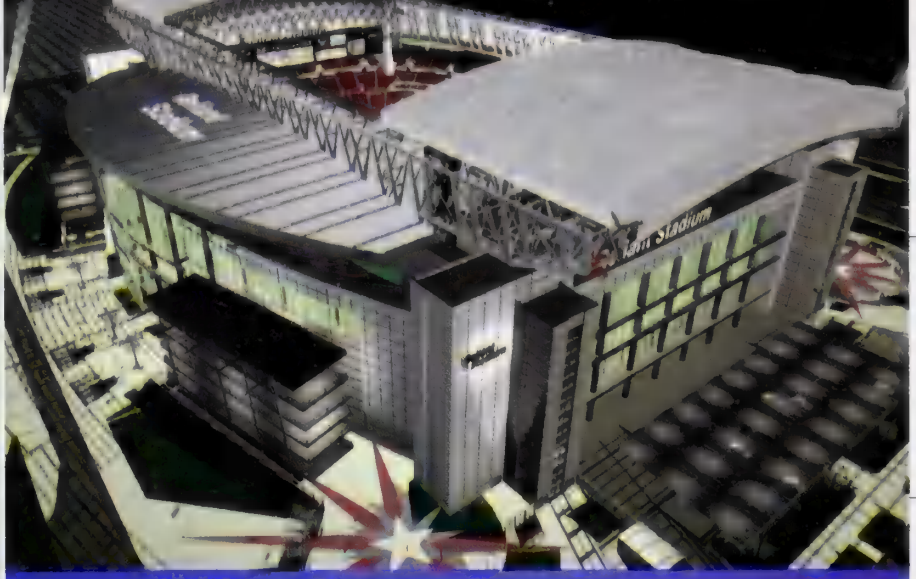
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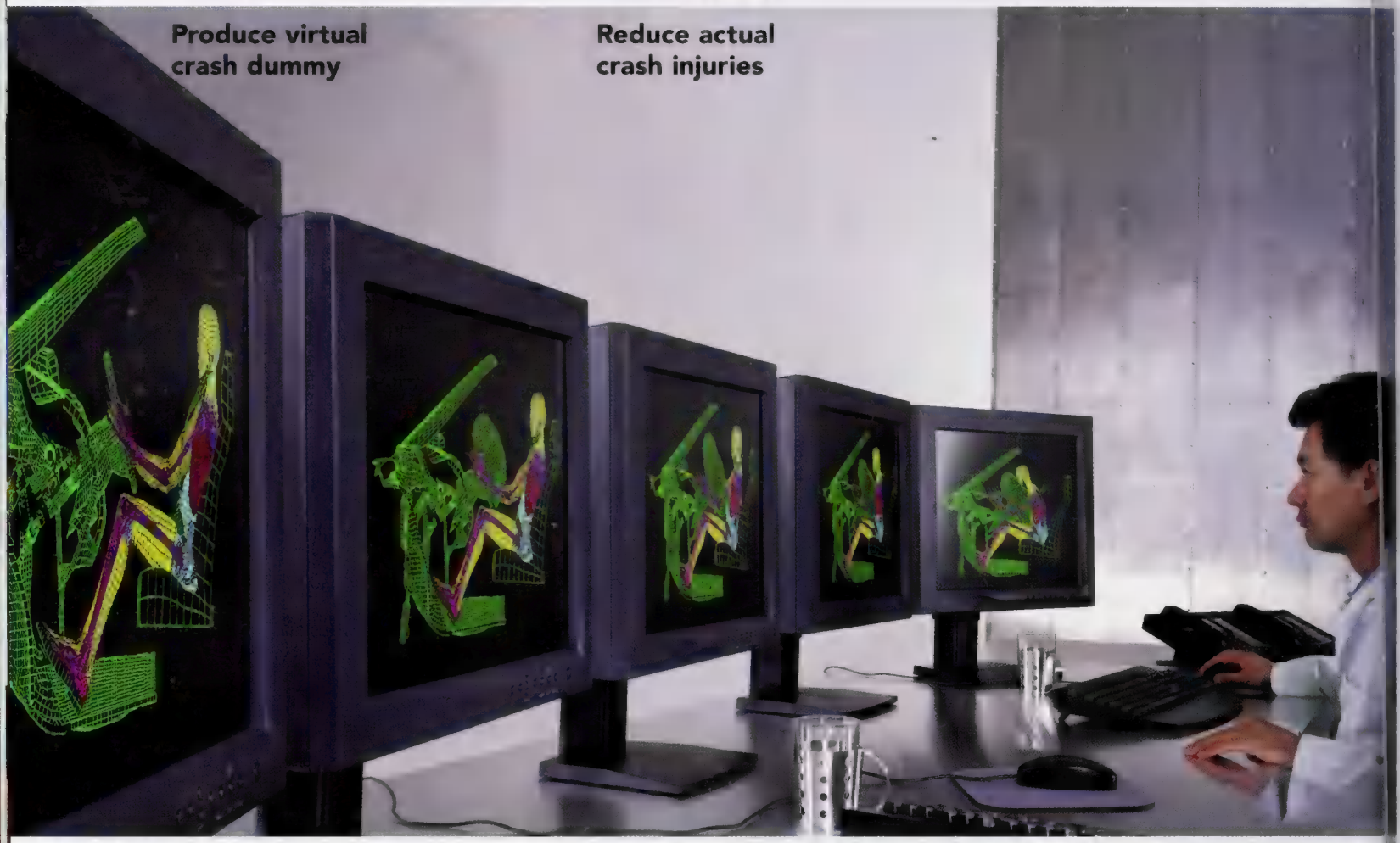
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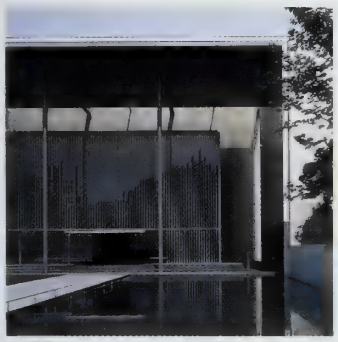
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Why Modernism?

It is still by no means necessary to conclude that the 'International Style'... should be considered the only proper pattern or program for modern architecture." Written for the August 1951 issue of ARCHITECTURAL RECORD, those words by Henry-Russell Hitchcock modified and updated the original manifesto declaimed by Hitchcock, Philip Johnson, and Alfred Barr at the landmark 1932 Museum of Modern Art show that introduced the style's name. Hitchcock's addendum came more than a quarter century after Gropius's Bauhaus, and after Le Corbusier's Pavilion of the Esprit Nouveau made its debut at the Exposition of Decorative Arts in Paris in 1925. He spoke of an architectural world made richer by Alvar Aalto, by Frank Lloyd Wright, and he cited lesser designers, as well. Modernism held sway, though not completely.



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Despite the heady early days in Europe and the United States, the pure precepts of the movement—including volumetric, spatial rendering devoid of excessive ornamentation, and a rejection of Neoclassical rules, such as symmetry—had not achieved hegemony. Despite the International Style's critical successes, personal expression, organicism, and historic references abounded. Robert Venturi's book *Complexity and Contradiction in Architecture* added leavening to the architectural brew, seducing Johnson himself back to his roots in architectural history.



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Why then Modernism? Why, at the dawn of this new century, do talented architects and willing clients find comfort in the spare tectonics and taut detailing that underlie a movement formerly impelled by social ideology and polemic? Why should Yoshio Taniguchi, gifted in architectural craft, proportion, and massing, make new buildings drawn from the Modernist idiom? Why should others of talent, worldwide, continue to draw inspiration from a style that an educated public has never fully embraced? What moves us, as architects, to make these particular new buildings among older surroundings? This issue of ARCHITECTURAL RECORD harks back to Hitchcock's essay and responds in its own, compelling graphic voice. *Robert Ivy, FAIA*



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Yoshio Taniguchi weds the ancient with the contemporary in his GALLERY OF THE HORYUJI TREASURES in Tokyo



By Robert Ivy, FAIA

Modernism has provoked continual dialogue between the general and the specific. The aptly termed "International Style" challenged subsequent generations to test its precepts of spare machined perfection in widely varying cultures, climates, and topographies. In late-20th-century Japan, the architect Yoshio Taniguchi faced such a challenge when confronting the question: What architectural vessel should appropriately house national artistic relics embodying the soul of Japanese civilization? The collections for which he would design a new home—the Shosoin and Horyuji Treasures—are considered by their current curator, Hiroaki Kaneko, to be "the two greatest treasure houses of ancient art in Japan."

Rather than revert to historicist antecedent, Taniguchi designed the Gallery of the Horyuji Treasures (also housing the Shosoin works), in Tokyo's Ueno Park, as an unabashedly Modernist museum, wedding ancient ideas and sensibilities with contemporary thought, materials, and execution. The building distills more than a thousand years of Japanese culture, capturing it through a clear, new lens.

Despite the authoritative weight of history, Taniguchi was emphatic: "This was to be like a frame for a painting. It doesn't have to look like Horyuji," he said, referring to the 7th-century temple complex at Nara, near Kyoto, that originally housed the objects now on display in Tokyo. Dating from A.D. 700, the temple's main hall and the pagoda of the west precinct are considered by scholars to be the world's oldest extant wooden structures. In 1878, Horyuji donated 319 objects, many of which were eventually deemed national cultural treasures, to the Imperial Household. In 1949, they became the property of the national government. By the 1990s, their extreme delicacy necessitated giving them their own home, and Taniguchi's gallery, a component of the Tokyo National Museum, resulted.

Within the larger park, the museum now resides in a symbiotic relationship with nature. Reminiscent of earlier Japanese architecture, such as the Shinden residences of the Heian aristocracy, the building is poised beside a pond, allowing views in from the approach and out toward trees and water from the interior. The elegant play between interior and exterior, art and nature, evokes the spirit of Japanese prints.

As is typical of Japanese garden architecture, Taniguchi's gallery is sited off-axis, tucked along a path behind the more imposing Beaux-Arts structures that anchor Ueno Park's main pedestrian thoroughfare. The approach to the building entails a sequence of encounters with objects (including a so-called Black Gate from an Edo period residence), sensory stimulation (from flowering trees and the sounds of birds and rippling water), and measured spatial experiences. A relatively narrow clearing opens, unexpectedly, onto at a quiet pond reflecting the gallery's portico.

The compressed and asymmetrically placed entry is reflected in a pool (opposite). The gallery is tucked amid trees and buildings in Ueno Park (above).

Other distinctly Japanese characteristics unfold. Asymmetrically placed and compressed, the building's entryway leads just past a narrow pedestrian causeway into a broad visitor's lobby bathed with sunlight from above. From within the space, slender aluminum mullions and a finely detailed glazed wall mediate views to the pond and garden.

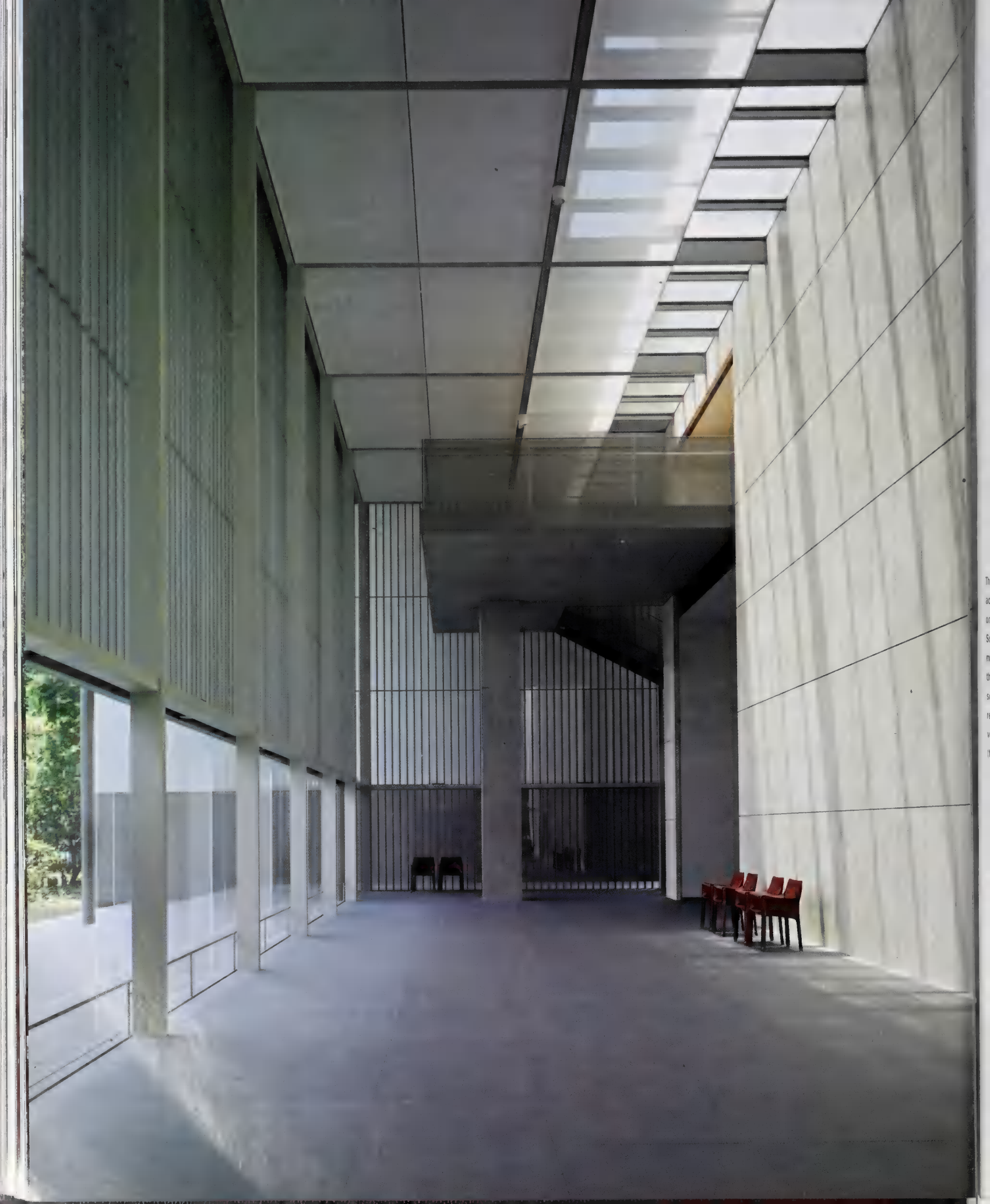
According to Taniguchi, the pathway and materials refer to Japanese spatial traditions. In a typical historic Japanese house, he explains, "You cannot see the planes—there is something dark ahead. In old Japanese houses, there is a gradation of darkness, and then you see the tokonoma decorative alcove." As in such houses, the visitor in this new gallery proceeds across a plane into gathering darkness: A diagonal path-

Project: *The Gallery of Horyuji Treasures, Tokyo National Museum*
Architect: *Taniguchi and Associates—Yoshio Taniguchi, Satoshi Muneo, Koji Ogawa, Brian Aamoth, Toshitsugu Kitajima*
Engineer: *Kozo Keikaku Kenkyusho (structural); Morimura Sekkei (MEP)*
General contractor: *Obayashi Corporation (architectural); Nihon Densetsu Kogyo (electrical); Sanreisha (mechanical); Daiko (elevators)*





The pool reflects the primary elevation of the layered facade, which combines glazing and aluminum mullions with elegantly spare planes of German limestone.







The foyer (opposite) admits filtered light onto limestone walls. Suspended aluminum mullions surrounding the entrance gracefully screen views to the reflecting pool and the verdant natural setting (this page).



1. *Entrance hall*
2. *Exhibition gallery*
3. *Art storage*
4. *Reference/research*
5. *Restaurant*
6. *Mechanical*
7. *Courtyard*



FIRST FLOOR

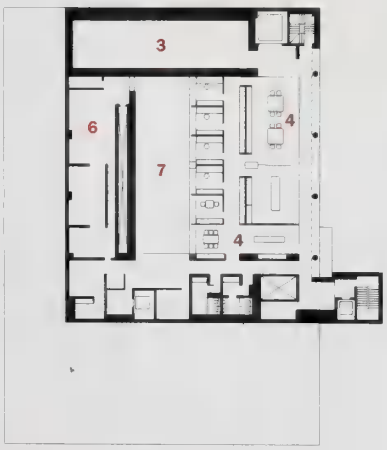


SECOND FLOOR

From above a staircase (opposite), daylight flows into a passageway punctuated by an ancient gilt object in a display case. With minimized detailing and extensive glazing, the cases effectively highlight and protect valuable works.



LOOR



FOURTH FLOOR

N 0 30 FT. 9 M.

way past smooth German limestone walls penetrates further into the darkened treasury within. Here, layer within layer unfolds in fiery darkness, with gilt-bronze Buddhas housed in transparent vitrines lit from above. In this near-sacred precinct, simple materials provide a backdrop for the display. Two large columns lend scale—"a sense of space," according to the architect—while stone flooring separates the display cases from the darkly painted surround.

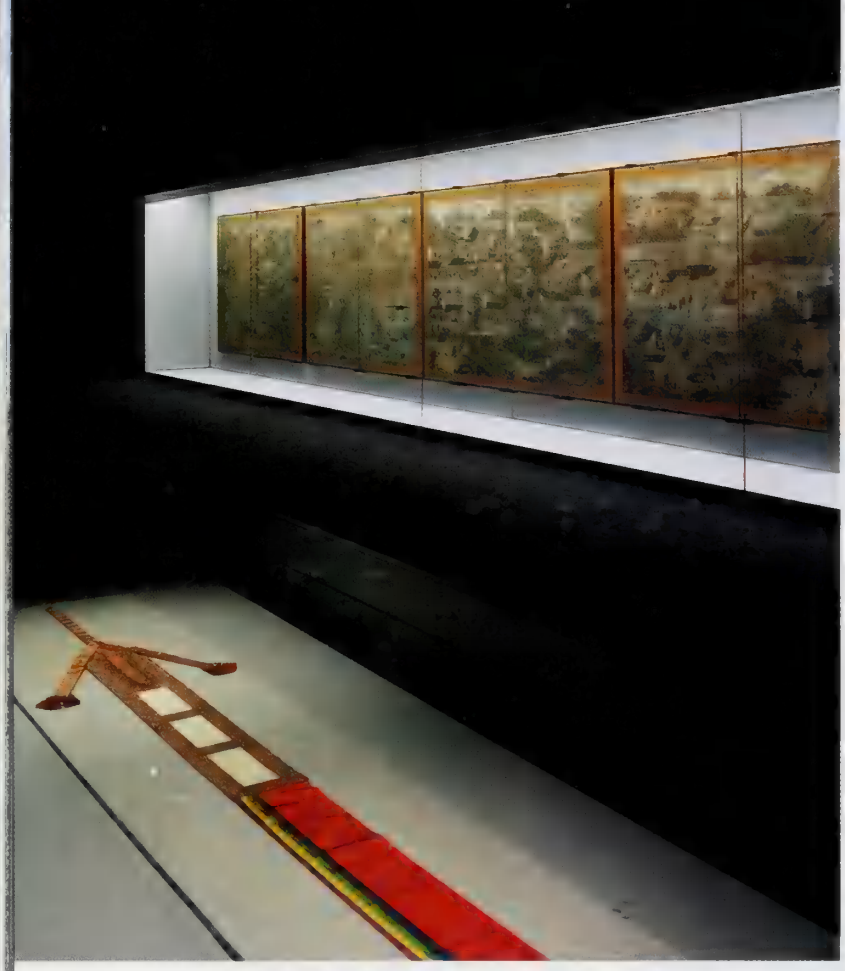
Besides the sensory qualities and traditional Japanese features of the design, scientific considerations also underlay the scheme. As Taniguchi asserts, "The objects are so precious, so vulnerable and easy to break, and so important." Conservation demanded radical thinking about how to preserve them while admitting a curious public intent on seeing them.

To give visiting scholars access to a permanent collection of objects from as early as the 7th century—masks for *gigaku*, an ancient dance drama;



At the heart of the treasury is a point grid of customized individual glazed cases containing miniature gilt-bronze Buddhas, some dating from the 7th century A.D. Twin columns provide scale and gravity to spare spaces where detailing has been intentionally downplayed.







paintings, including the exquisite 11th-century *Pictorial Biography of Prince Shotoku*; incense burners; and ceremonial banners—introduced a range of curatorial demands. Among the requirements were elaborate systems for protection against fire, theft, earthquake, and temperature variation, which demanded engineering attention prior to architectural resolution.

While the gallery suggests, and offers, actual solidity and protection, the building appears to evanesce upward, its membrane thinning out into the landscape. Controlled natural light bathes the stairwells, which culminate in skylit staff and research spaces on the top floor. Building systems mimic the progression of dark to light, with metal and glass stairwells allowing visitors literally to see through them toward the canopy of trees outside. Lightest of all, the mullioned curtain wall provides a delicate fabric or veil around the glazed exterior—a condition permitted by its suspension from the roof. Freed of carrying its own load, the curtain wall seems to float.

Although well known in Japan as a designer of museums, Yoshio Taniguchi has been thrust into the international spotlight since being selected as architect for the reconstituted Museum of Modern Art in New York. Now the world may focus on the Gallery of the Horyuji Treasures, as well. At this museum in Tokyo, Taniguchi displays a finely tuned sensibility, revealing a capacity to interpret Modernism for other kinds of artworks and museum goers. The exacting proportions, materiality, and detailing of the gallery evoke deep cultural memories, yet speak contemporary Japanese. The architect's forthcoming design for New York will speak another, perhaps more emphatic, language of Modernism. ■

Sources

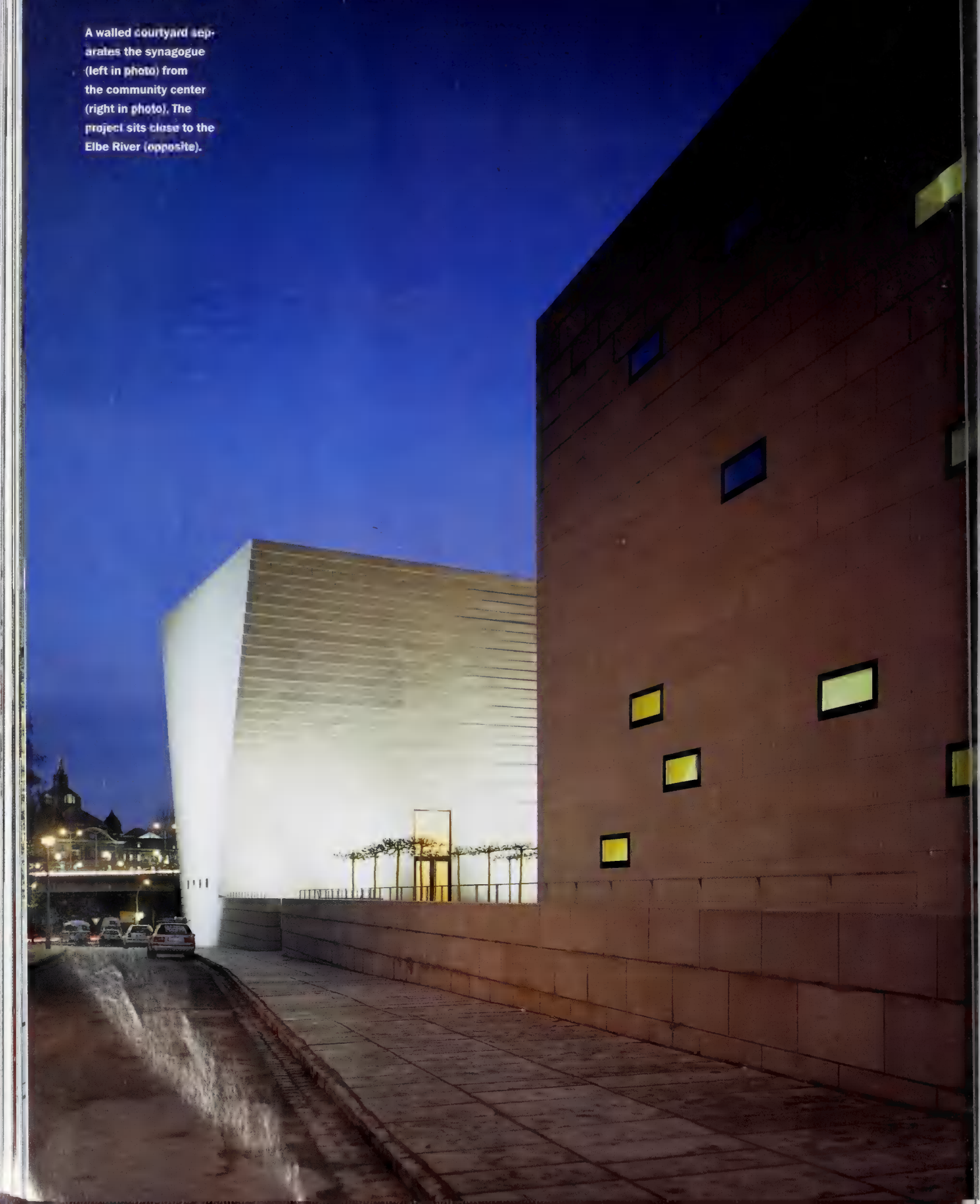
Exterior stainless-steel panels: *Kikukawa Kogyo Company*

Interior limestone: *Sekigahara Stone*

WWW For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.



Indirect lighting minimizes heat buildup on textiles and paintings (opposite) and is less distracting to viewers. Masks for *gigaku*, a ritual dance drama, seem to float in the darkened room. Throughout the gallery, complex but hidden systems protect against such threats as fire, theft, earthquakes, and variations in temperature.



A walled courtyard separates the synagogue (left in photo) from the community center (right in photo). The project sits close to the Elbe River (opposite).

A complex and tragic history informs Wandel Hoefer Lorch +Hirsch's poetic design for the new DRESDEN SYNAGOGUE



By David Cohn

The view of Dresden from the banks of the Elbe River in the former East Germany has changed little since it was painted by Bellotto in the 18th century. But recently, the Baroque towers, Renaissance gables, and Classical pediments of its palaces and churches have been joined by a stark modern form: a rectangular block without ornament or windows, which twists slightly as it rises, like a deck of cards drifting out of alignment, or the solemn, tentative beginnings of a spiraling Baroque caprice. This enigmatic gesture belongs to Dresden's new synagogue, a symbol of the rebirth of its Jewish community.

The beauty of the scene is deceptive, for it disguises a complex and tragic history. With its rich artistic patrimony, Dresden has been called "the Florence on the Elbe," but it was largely destroyed by an Allied bombing attack shortly before the end of the Second World War in which between 35,000 and 135,000 people were killed. Virtually all of its palaces, churches, and monuments are careful postwar reconstructions, which form a historic vignette within the quiet industrial city of wide boulevards and modest apartment buildings that has replaced the old Dresden.

An elaborate Byzantine-style synagogue once had a place on this skyline. Designed in 1838 by Gottfried Semper, architect of the Dresden opera house (destroyed in 1945; rebuilt in 1985), it was burned by SS troops on Kristallnacht ("the Night of Broken Glass"), November 9, 1938, when Jewish shops, homes, and synagogues were attacked all across Germany. Of the city's Jewish community of roughly 6,000, only a few dozen remained by the end of the war; at least 1,500 were deported to concentration camps.

Since 1990, however, the city's Jewish population has grown with the influx of immigrants from former Soviet republics, chiefly Russia and the Ukraine. It currently numbers 300 and is expected to double in the next three to four years. The campaign to build a synagogue on the site of the Semper building was launched in 1996, with financial backing from the regional government of Saxony and the city of Dresden, which contributed $4 million, and a private foundation that raised the remainder of the $11 million budget.

The architects of the new synagogue—Wandel Hoefer Lorch + Hirsch—are all in their early 40s. They are based in Saarbrücken, near Frankfurt, and they designed Frankfurt's Börnerplatz Jewish Memorial. Their project for Dresden won third prize in a limited competition and, according to Wolfgang Lorch and Nikolaus Hirsch, was selected by the local Jewish community for its functional plan and "for the way that it relates to the Elbe." Unlike other entries, their project divided the complex into two buildings, the synagogue and a community center, which face each other across a narrow raised courtyard enclosed in low walls. In the center of the courtyard, the footprint of the original location of Semper's building is marked by a paving of broken glass—a moving, tactile reference to its destruction.

The synagogue is built of horizontal rows of precast concrete blocks. Its rotating form arises from the conflict between the orientation of the site and the ritual requirement for worshipers inside the temple to face east. Each successive row is slightly rotated in relation to the row

David Cohn is RECORD*'s Madrid-based correspondent and is the author of* Young Spanish Architects, *published by Birkhauser in 2000.*

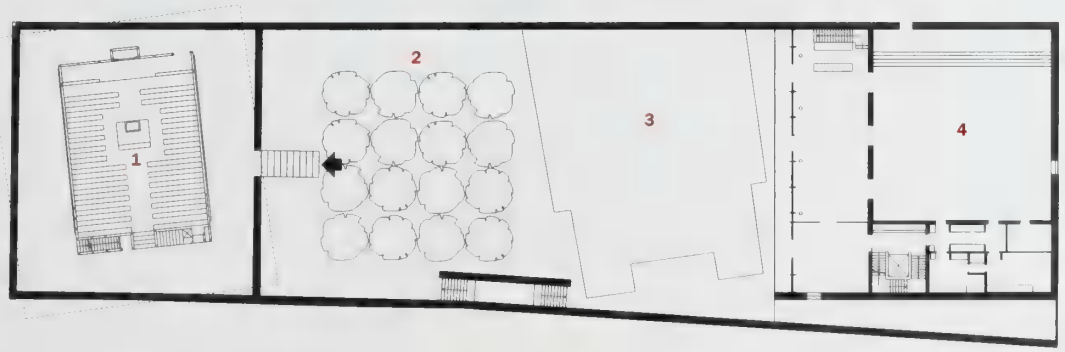
Project: *Dresden Synagogue, Dresden, Germany*
Architect: *Wandel Hoefer Lorch + Hirsch—Andrea Wandel, Hubertus Wandel, Rena Wandel Hoefer, Andreas Hoefer, Wolfgang Lorch, Nikolaus Hirsch, partners; Kuno Fontaine, Christoph Kratzsch, Dirk Lang, Lukas Petrikoff, Tobias Wagner, project team*
Consultants: *Schweitzer Ingenieure (structural); Müller BBM (acoustics); Zibell Willner & Partners (mechanical and electrical)*
Project manager: *Fischer Projektmanagement*

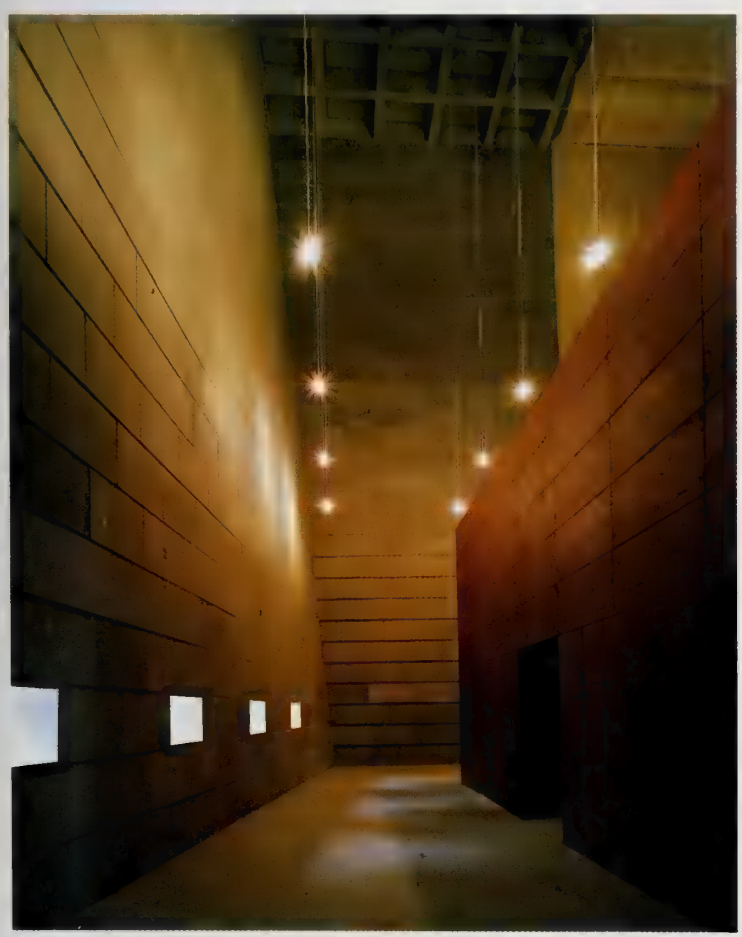


Each row of concrete blocks rotates from the one below it, so the top of the synagogue is displaced 15 degrees. The project's two structures (opposite, top) allude to the secular and sacred aspects of Jewish life. The sanctuary sits within the synagogue (opposite, bottom).



1. *Synagogue*
2. *Courtyard*
3. *Footprint of old synagogue*
4. *Community center*



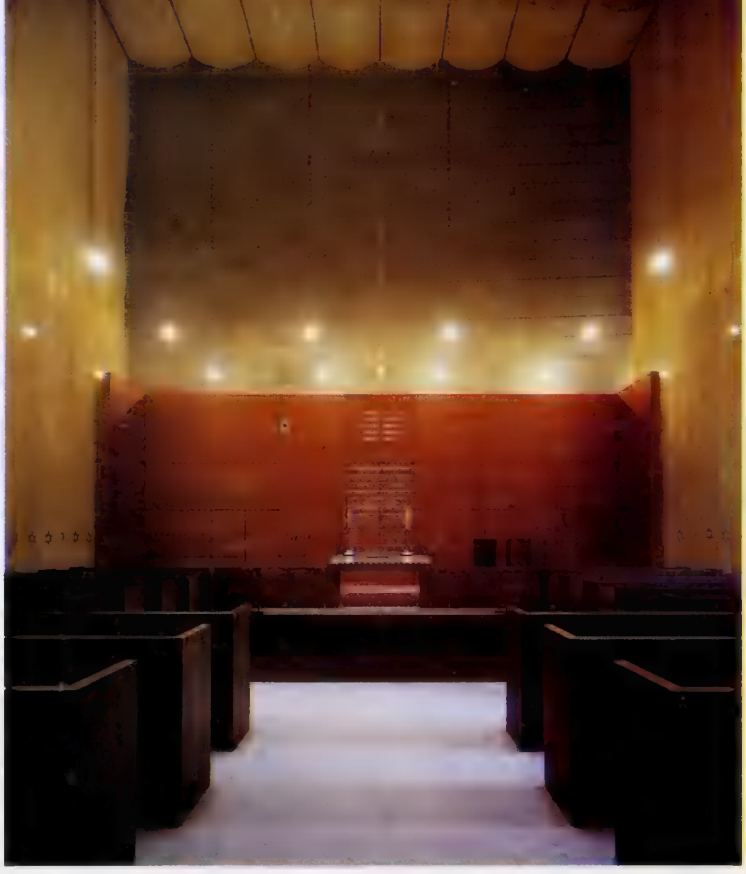


below, following a common vertical axis, so that the top of the building is displaced about 15 degrees. The Star of David over the entrance is the only surviving fragment of the Semper temple, where it crowned one of the two towers; it was hidden during the war by a Dresden fireman, who returned it to the local Jewish community in 1945.

Inside the synagogue, the sanctuary is enclosed in a gossamer fabric of tiny rings of tombac (a metal similar to brass), suspended like a tent, and is illuminated by a central skylight. Its simple furnishings are built of dark-stained oak: the pews; a small balcony; the bima, or reader's desk, in the center; and the ark holding the Torah, or sacred scriptures, on the eastern end, with Stars of David woven into the metal fabric behind it. The sanctuary was designed to accommodate any of the different Jewish practices, from Orthodox rigor to Reform modernizations.

Lorch says that the tentlike form within the solid volume "speaks about the historic conditions of Judaism in an architectural context." He points out that there has never been a single accepted style or form for synagogues. But looking into history, he explains, the architectural settings of Judaism alternate between the temporary, as in Moses' tabernacle in the desert, and the permanence of Solomon's temple, whose surviving "Wall of Lamentations" in Jerusalem is distantly recalled by the rough sandstone-colored blocks of the Dresden synagogue.

In contrast to the windowless sanctuary, the community center overlooks the courtyard through a glass curtain wall framed in oak. Inside, oak partitions fit into the exposed concrete structural walls like cabinetwork. Windows around the perimeter walls appear frameless from the outside and match the dimensions of the precast concrete block cladding, giving the perimeter a fortified appearance. The central block includes a multiuse hall for receptions, banquets, exhibitions, and performances, with provisions for a café that can serve outdoor tables in



the courtyard, as well as offices, classrooms, and a kitchen. On the top floor, a walled terrace sits above the multipurpose hall.

As the defensive perimeter wall and limited access to the synagogue suggest, security issues had an important impact on the design and the selection of precast concrete block as the primary building material. (Like other Jewish centers in Germany, this one also has a guard on duty at all times.) In addition, the architects preferred concrete to the local sandstone used in many of the city's monuments because it doesn't blacken over time. They did incorporate the sandstone, however, as an aggregate in the concrete and set a few blackened and worn blocks salvaged from the Semper temple in the courtyard walls.

In the context of the reconstruction of historic Dresden, the decision not to rebuild the Semper synagogue is of symbolic significance in its own right. At the moment, the attention of Dresdeners is focused on rebuilding their last great ruin, the 18th-century Frauenkirche, or Church of Our Lady, with its 300-foot-high dome, and the Baroque buildings that once surrounded it. For the Jews of Dresden, there can be no such spirit of return or continuity with the past. At the same time, the new Jewish community remains fragile. After five decades of official atheism under Communism, religious practice in any form withered in East Germany, and the sense of Jewish identity among many of the newcomers is not strong. The restrained, expressive design of the building captures this spirit well. It reaches into ancient Jewish tradition for its sources, spans the terrible history of the recent past with a void of shattered glass, and offers a tentative gesture of hope for the future. ■

Sources

Facade windows: *VHB*

Roofing: *Bauzentrum Leipzig*

Masonry: *Bau Nossen Stetzler*

Lighting fixtures: *Wilms*

Synagogue furniture: *Deutsche Werkstätten Hellerau*

Community center furniture: *SMS Innenausbau*

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The architects enclosed the sanctuary with suspended fabric made of tiny rings of tombac, a brasslike metal. Furnishings and the ark holding the Torah are made of dark-stained oak (opposite, top).



Along a busy highway, the Factory's colorful curves convey its experimental agenda.

Sauerbruch Hutton roll out a bright wrapper for the EXPERIMENTAL FACTORY

By Nina Rappaport

Otto von Guericke, a 17th-century physicist from Magdeburg, Germany, demonstrated the force of atmospheric pressure by sealing two hemispheres with a vacuum. A pair of horses could not pull them apart, thereby demonstrating the force of atmospheric pressure. His experiment established a reputation for scientific excellence in this city, 70 miles southwest of Berlin. Driven by local research, the city became an industrial center, but saw its role decline while it was part of East Germany. In the reunified nation, Magdeburg is the capital of the economically troubled state of Sachsen-Anhalt and hopes to capitalize once again on its tradition of innovation by attracting emerging scientific and manufacturing research institutions.

At the southern end of the university named for the city's earliest innovator, a cluster of three new buildings forms a "research park"—or, as sponsors would like to think, a mini Silicon Valley—along a major traffic artery. The most visually striking building of this ensemble, which also includes the Fraunhofer and the Max Planck institutes, is the 56,000-square-foot Experimental Factory Magdeburg (EFM), which Berlin-based architects Matthias Sauerbruch and Louisa Hutton designed. Its undulating, pajama-stripe pink, ocher, and gray metal roof advertises Germany's investment in innovation.

Nina Rappaport, a freelance writer, edits Constructs *for the Yale School of Architecture and has taught on the subject of postindustrial-factory design.*

Project: *The Experimental Factory Magdeburg, Magdeburg, Germany*
Owner: *Center for Product, Process and Production Innovation*
Architect: *Sauerbruch Hutton Architects—Matthias Sauerbruch, Louisa Hutton, design partners; Andrew Kiel, project architect; Marcus Hsu, Philip Engelbrecht, Barbara Suter, Mehmet Dogu, Bettin Pinks, team*
Engineers: *Bautra (structural); Canzler Ingenieur (environmental)*

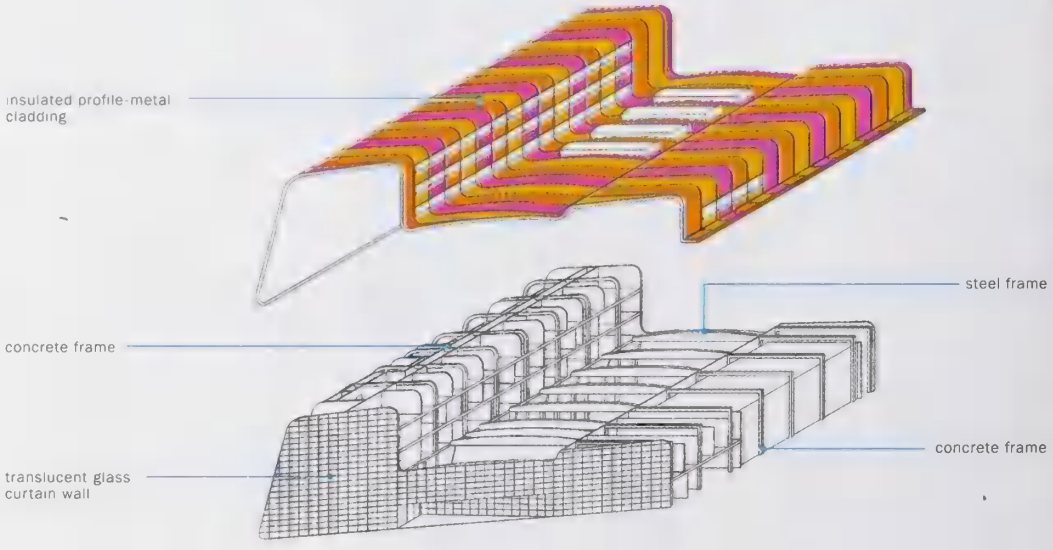




PHOTOGRAPHY: © BITTER + BREDT (THIS PAGE AND OPPOSITE); GERRIT ENGEL (RIGHT)



The roof/wall insulates as its curves express the tripartite program (diagram, right). Volumes from left to right in photo above comprise the electromagnetic-field lab, the large hall, and the taller office/lab wing. Hutton describes the fritted-glass elevation as "like looking through a veil." Researchers can see out, but passersby are able to see in only at night.





Collaborating to incubate

The university and local manufacturers, with major support from the European Community, invested $12 million in the Center for Product, Process and Production Innovation (ZPVP), a new organization that built the EFM. The factory is conceived as an incubator of sorts, where businesses and academic scientists can test industrial machinery, processes, and products in leased laboratories and production halls. A company's experts, the facility's scientists, or university researchers can collaborate in what Dr. Karl Grote, who runs the center, calls an "open source environment, where scientists can exchange information."

Sauerbruch Hutton's design of the EFM is simple but bold. It unites a five-story office and research laboratory; a central, large-scale, multipurpose testing hall; and an electromagnetic-field testing room. The separate structures of the tripartite program combine prefabricated concrete panels, poured-in-place concrete, and a steel frame for the large testing hall.

The "draped blanket" as image of innovation

The building's extruded form, as though cut from a continuous mold, represents the flow of production processes, and results in a curvilinear and funky adaptation of the extruded shapes Albert Kahn developed in many of his elegantly functional American factories, such as the Dodge

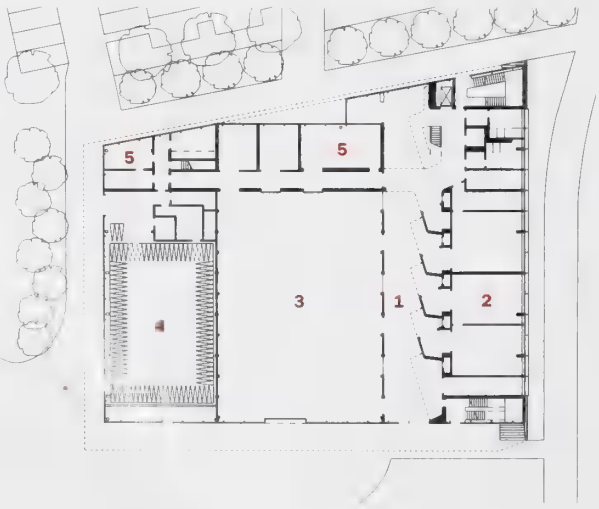


The main entry on the north is an unobtrusive wedge-shaped recess cut into the translucent fritted-glass facade.

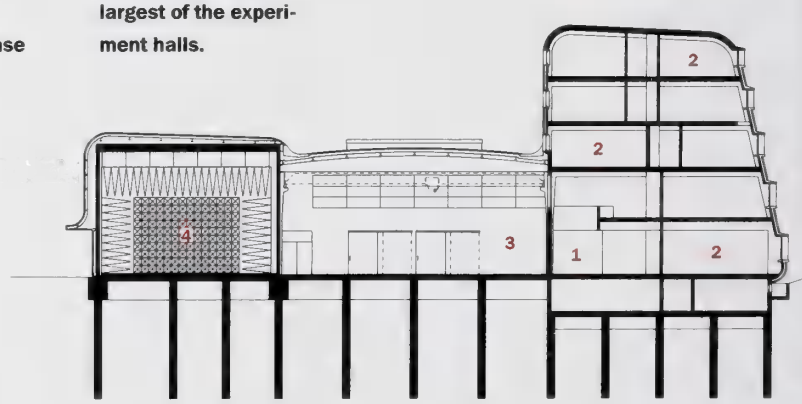




In the main double-height lobby, the architects enliven the space with wall elevations painted in bright ribbons of color (above). A staircase (opposite) leads to the sinuous mezzanine balcony, from which researchers can gaze through glass into the largest of the experiment halls.



GROUND FLOOR



SECTION

1. *Internal street*
2. *Lab/office*
3. *Large experiment hall*
4. *Electromagnetic-field testing*
5. *Office*



Half-Ton Truck Plant of 1938. The undulating, highly insulated roof wraps vertical as well as horizontal surfaces, becoming a facade itself—or, as the architects call it, a "draped blanket"—punctured with bands of windows for the offices in the five-story volume. The roof's paint coating can also be seen as an allusion to one of the material-coating research processes conducted inside.

The lobby forms an internal street that not only serves the building but also forms a path connecting a line of research facilities. Individual laboratory offices project into the lobby at an angle (plan, opposite), and there is a checked pattern of brightly painted concrete panels and windows that allow views into the main testing hall, thereby creating the desired access between researchers and that being researched, as well as inviting curiosity from visitors.

In the 28-foot-high main hall—an open factory floor complete with an overhead crane—companies can lease segments of floor area to investigate various manufacturing issues. The kinds of projects already undertaken suggest the hall's versatility. One project assessed how long production lines can damage goods. Others considered laser-cutting-machine precision and measurements and how to make cutting tools outlast the materials being cut.

Across the main lobby, in the five-story structure, the architects successfully combined offices, laboratories, and common rooms to encourage communication among the researchers—who number 150 when the facility is fully leased. The laboratories are simple spaces, some of which access shafts accommodating a variety of gas sources and exhaust.

In the volume at the opposite end, the ZPVP requested an isolated room, in which lightweight conical elements line the walls, ceiling, and floor, like an inside-out porcupine. Here, scientists measure electromagnetic fields generated by appliances.

The bright colors seem to some a bit glib for a serious industrial complex. Although they are an unabashed Sauerbruch Hutton trademark, they're not entirely unknown in this otherwise largely dour city. One of Germany's early Functionalist masters, Bruno Taut, headed the city building agency in the 1920s when he built the Modernist garden city, Reform, tinting the stucco facades in vibrant hues of blue and yellow (though few were aware of their full chromatic vibrancy until a 1995 restoration). It's too soon to tell how successful the EFM will ultimately be, but if bright colors help lure talented collaborators, the 20 percent of Magdeburg's population that is unemployed will find these hues inspiring indeed. ■

Sources

Formed-aluminum cladding: *Kal-Zip*
Curtain wall, aluminum framing, entrance doors: *Hueck Facade Systems*
Soundproof and solar-protection glass: *Pilkington*
Special fire and industrial doors: *Schörgruber; Frankonia*
Acoustical ceilings: *Gyproc*
Paints and stains: *NCS-Color Systems*
Rubber flooring: *Freudenberg*
Tiles: *Villeroy & Bosch*
Electromagnetic-field-room construction: *Frankonia*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.



Ferrater split the program into a series of articulated, but attached, volumes—as in the exhibition and office components (this page). The massing lends the Diagonal Avenue elevation the sense of a traditional street front (opposite).

Barcelona architect Carlos **Ferrater** deftly casts concrete into pure, crisp, brilliantly white forms at his **CATALUNYA CONGRESS CENTER**

By David Cohn

Finished largely in exposed, poured-in-place structural concrete, the Catalunya Congress Center in Barcelona demonstrates the versatility and beauty of a material that, in less skillful hands, can be rough and unreliable. The brilliant white forms of this building, by local architect Carlos Ferrater, have the sharp-edged, crystalline quality of marble or limestone while taking full advantage of concrete's enormous plastic potential. To achieve these results, Ferrater combined marble aggregates and careful workmanship with high-strength mixes developed for civil-engineering applications.

This 385,000-square-foot convention facility was selected by the Spanish government as the site for last March's summit meeting of the European Community's 15 heads of state. It was developed by the owners of the adjacent 1992 Hotel Juan Carlos I, also designed by Ferrater. The two buildings stand on the grounds of a former estate on Diagonal Avenue (Avenida Diagonal), near the point where the boulevard exits the city's western limits and becomes a major highway.



Along the Diagonal, Ferrater assembled the program into a series of attached but well-defined volumes: a rectangular auditorium, an exhibition hall faced in louvers and glass, a service tower, and a curving restaurant. Staggered, these elements create an urban street front as well as a dynamic backdrop to the fast-moving traffic. Here, the horizontal lines of concrete canopies and louvers and glazed strip openings give a sense of weightlessness, a floating quality, to large areas of solid wall and to simple rectilinear massing.

For all the virtuosity of the concrete work, Ferrater assigns it a mere supporting role—as a medium to transmit and reflect the play of light. The ground marble added to the aggregate gives the concrete a brilliant white color, a luminous surface, and delicate texture. (The exteriors are protected from staining by a coat of transparent waterproofing sealant.) Crisp corners, with no blunt edges, were obtained through exquisite control in the pouring process with conventional metal formwork. The white granular finish also permitted post-pour touch-ups, as needed. In one particularly tricky detail, the exhibition hall's horizontal louvers were poured successively one over another through stacking wooden formwork. Though Ferrater has extensive experience with concrete, he admits in retrospect that the quality achieved here entailed a "suicidal operation," requiring two years of intensive on-site supervision.

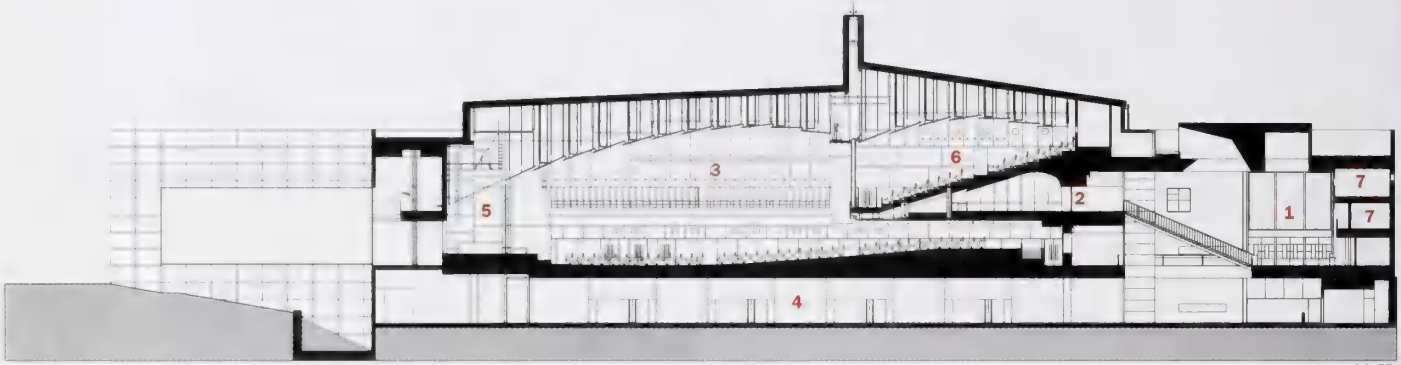
Inside, the architect organized the building around an interior promenade or circulation spine that provides a visual axis between the boulevard elevation and the estate's surviving garden. This thoroughfare separates the auditorium from the exhibition hall, leading from the entry vestibule to a reception foyer overlooking the garden down a slope at the rear of the site. The internal "street" also provides vertical circulation with access to the building's 32,000 square feet of banqueting halls and meeting rooms on its lower garden level.

In developing the interior, Ferrater explains, "We made the lighting the main protagonist, focusing on the different ways it floods into the building and is reflected by the concrete." In a related subtheme, all the major spaces have windows that terminate axes with views. This feature, unusual in such facilities, orients movement in the building toward the exterior.

David Cohn is RECORD*'s Madrid-based correspondent.*

Project: *Catalunya Congress Center, Barcelona, Spain*
Architect: *Carlos Ferrater*
Associate architects: *José María Cataña; Rafael Alabernia (technical); Alberto Peñín (collaborator)*
Interior design: *Euroamykasa; Alcofol; Pepe Cortés*
Engineers: *Agroman; Pondio*
Consultants: *Crespo y Blasco (lighting); Robles 9 (formwork); Chemtrol (stage machinery); Lluís Diéguez (topography); ATISAE (quality control)*
General contractor: *Ferrovial-Agroman*

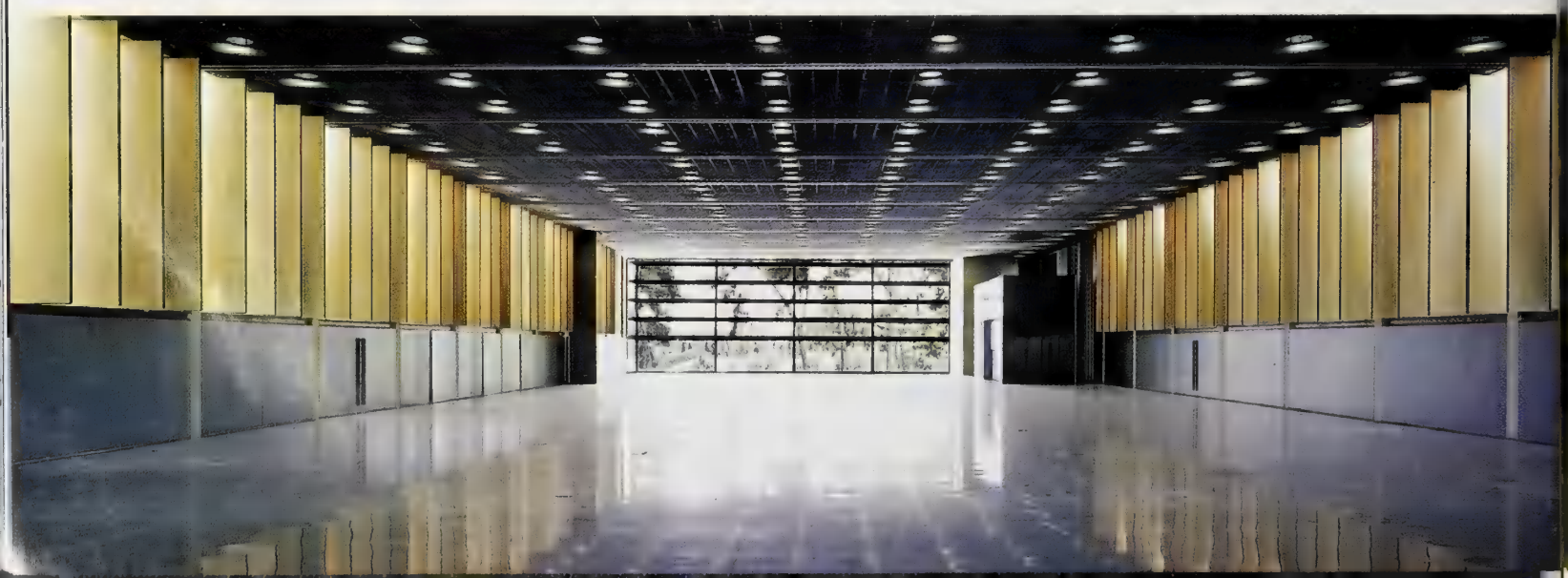


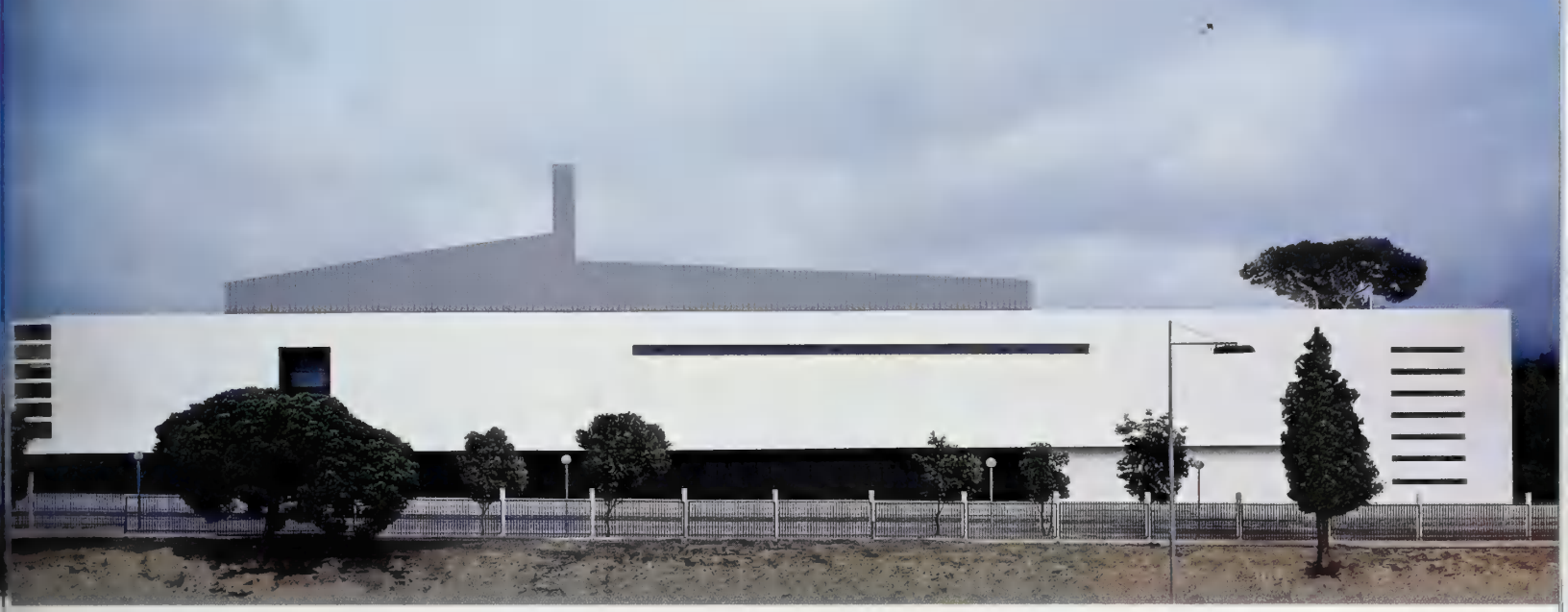


SECTION A-A

1. *Entry foyer*
2. *Press mezzanine*
3. *Auditorium*
4. *Banquet halls/ meeting rooms*
5. *Reception foyer*
6. *Balcony*
7. *Offices*
8. *Interior promenade*
9. *Services/garage*
10. *Stairs to auditorium balcony*

Horizontal louvers and strip openings, along with simple planar canopies, give a weightless quality to great expanses of wall and large rectilinear volumes. With ground marble in its aggregate, the concrete has the exceptionally luminous character of fine stone (this page, top, and opposite).





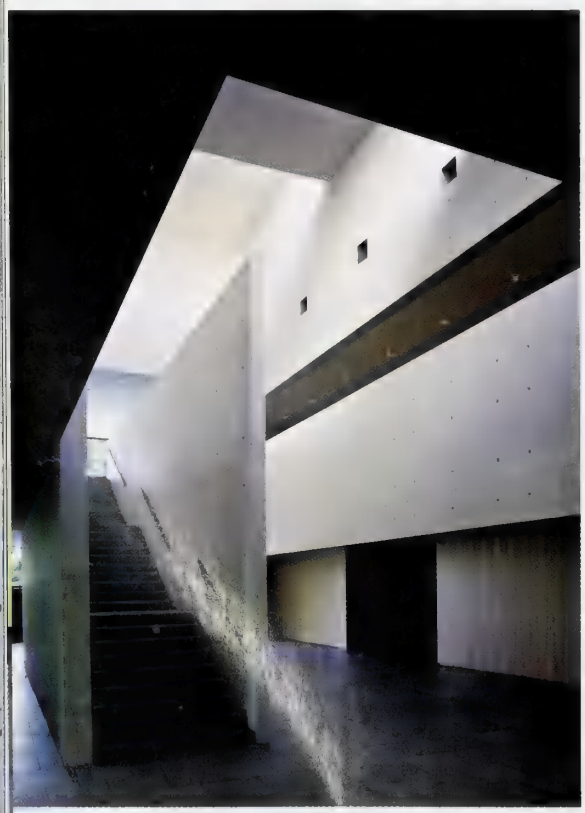


SECTION B-B

Ferrater's attention to detail, lighting nuances, and material refinement make his Minimalism unusually rich and compositionally balanced—as in the exhibition hall (opposite page, bottom) and the auditorium's reception foyer (below), with its chromed-steel cruciform columns and curving stair.







1. *Entry foyer*
2. *Coats*
3. *Auditorium*
4. *Reception*
5. *Offices*
6. *Café/restaurant*
7. *Exhibition hall*



In the auditorium's high foyer, a ropelike steel sculpture rises beneath a skylight (opposite). The interior promenade, articulated in concrete planes, draws in daylight in diverse and subtle ways (left and above).



Modulated in varied and subtle ways throughout the complex, daylight animates the public spaces. Beyond the shade of a low exterior canopy, the auditorium's double-height entry foyer is illuminated by four concrete skylights, each facing a different cardinal direction to capture a different "temperature" of light. *The Fountain*, a ropelike steel sculpture by artist Andreu Alfaro, rises under one of the skylights, beside a delicate stair to a mezzanine. The 2,000-seat auditorium beyond, lined in Canadian maple, has a large window behind the stage that can be uncovered to reveal views.

The roof over the internal promenade is a staggered series of horizontal concrete canopies with clerestories, admitting northern light to the entry and garden floors. The 20,000-square-foot exhibition hall has glazed end walls, as well as two rows of glass-roofed concrete boxes that line the side walls at the clerestory level and introduce daylight indirectly. Operable vertical louvers, faced in maple and teak, control the light entering through the modules. Along the internal street, these high concrete boxes also serve as exhibitors' display vitrines. Maintaining clean-lined surfaces throughout the project, Ferrater also developed a galvanized-steel-mesh ceiling, which incorporates the hall's mechanical services and lighting.

With structural finesse, the architect achieved apparently delicate concrete work while creating elements capable of withstanding 5,690 pounds per square inch. Such strength was needed to handle the project's complex cantilevers and counterweights in, for example, its structurally ambitious auditorium balcony or its pretensioned beams with spans exceeding 90 feet over the banquet hall. Extra reinforcing in the long western elevation, as well as the collagelike massing of independent volumes, minimized the need for expansion joints—giving the stonelike surfaces an unfamiliar, seamless appearance, like an exotic superplastic.

Before embarking on the Catalunya Center, Ferrater had established a reputation for public works, as in his recent Barcelona Botanical Garden, and for luxury and subsidized housing. He is currently building the Zaragoza High Speed Train Station and a concert hall in Castellón, both in Spain. Formally, his work is related to that of several of his Spanish contemporaries, including Guillermo Vázquez Consuegra of Seville, author of the recent Museum of the Enlightenment in Valencia; Francisco Mangado of Pamplona, designer of the congress center currently under construction there; and Juan Navarro of Madrid, architect of the Princeton University Music Library. Their designs all feature simple and clearly legible forms, intuitively organized and articulated with an apparently casual elegance.

Like these architects, Ferrater is a rigorous and demanding builder for whom the technical details of construction are inseparable from the design process. In the Congress Center, this pairing of technical sophistication and design sensibility creates a fluid modern idiom that is at once pragmatic yet open to poetic intuition. ■

Sources

Curtain wall: *Talleres Inox*

Concrete: *Valencia de Cementos; Pioneer*

Hardware and locksets: *Tecosur; Arcon*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.



The gray "box beam" form of the column-free main workshop level cantilevers out from the body of the building while supporting the wood-paneled office levels placed cross-wise above.

Using sophisticated engineering, Barkow **Leibinger** reconciled the Grüsch **INNOVATION CENTER** with its magnificent setting





A garden ramps under the western entrance elevation (opposite, top), leading up along the east side (this page). It opens a below-grade cafeteria to the stunning views and visually locks the building into the landscape. The main entrance (opposite, bottom).

By James S. Russell, AIA

What cubicle-bound slave of the high-tech economy has not dreamed of a workplace set in a postcard-perfect Swiss Alpine valley? In Grüsch, you can shut down the computers and, a few miles later, schuss the slopes of Davos. Although such amenities draw Americans to treasured natural landscapes in the states, development too often threatens the environment that attracted people in the first place. This region values its farmland and its traditional density in contrast to the tumbled Alpine expanse. It is by design that farm fields wrap mountain haunches, and the village, sharply bounded by fields, hugs the valley's flat upper edge. Like plenty of other towns, Grüsch wants to encourage economic growth and diversity without compromising an extraordinary setting. Few find the way to deal with this sensitively and without rancor.

The Canton of Graubünden, of which Grüsch is one village, wanted to expand the inventory of business space and incubate sophisticated new enterprises. Trumpf, a multinational maker of machine tools, power tools, electronics, and medical devices, wanted to expand beyond its 150,000-square-foot existing facilities. But there was not much space to expand into, without plowing under farmland. The city and corporation, aided by a bank, made a deal. The incubator would be built as an extension of the Trumpf facility, and the company would share space—and its know-how—with start-up businesses. The town would help lower the rents.

The intriguing program and magnificent setting were rich in



Project: *Innovation Center, Grüsch, Switzerland*
Client: *Trumpf Grüsch*
Architect: *Barkow Leibinger Architects—Frank Barkow, Regine Leibinger, partners; Anne Marie O'Connor, project architect; Christina Lill, Ariel Huber, Esther Righetti, Thomas Strebel, project team.*
Associated architect: *Aves Architekturbüro*
Engineers: *Conzett, Bronzini, Gartmann (structural); Züst Hans-Luzi Züst-Stock (mechanical); Brüniger & Co. (electrical)*
Consultant: *Büro Keifer (landscape)*



The clarity of the building structure is echoed in the varied concrete textures, ranging from board-formed, in partition in the cafeteria (right) and in the entry porch (previous page, bottom), to the smooth surface of the ground-floor lobby's exposed ceiling and floor (below).

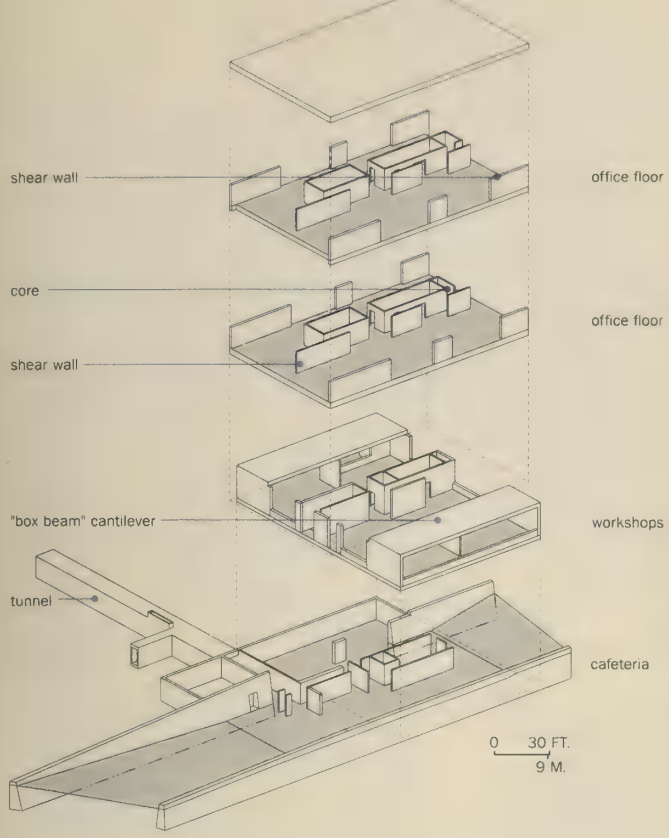


potential. But how to make one work with the other? Architects Regine Leibinger (she's German, Harvard trained) and Frank Barkow (he's American, also Harvard trained) found a common thread in another local tradition—that of brilliant engineering. Graubünden's numerous ravines nurtured the bridge-building genius of legendary engineer Robert Maillart, whose elegant essays in poured-in-place concrete brought a long history of spectacular masonry-arched structures into the 20th century. "We had done some landscape-generated projects," explains principal Frank Barkow. "We had been doing a studio at Harvard that looked at bridges, retaining walls, tunnels, cantilevers—we wanted to see how these could be appropriated in spatial terms and at the scale of buildings."

They "folded down" the landscape, they explain, carving a ramped declivity east to west and lining it with exposed-aggregate-concrete retaining walls. By spanning the glazed, column-free lower level with a board-formed concrete ground floor oriented north to south, the agricultural surroundings appear to flow through the building. Up to four light-industrial tenants can share the long-span, light-industrial space. The architects mounted two upper levels, clad in red-stained larch, perpendicular to the floor below. These, also divisible in a variety of ways, accommodate offices.

This cross-stacked "house of cards," as the architects call it, is not as capricious as it seems. The projecting upper floors shelter the building entrances underneath from frequent rains and bouts of wet winter snow. The roof of the workshop level offers pleasing outdoor terraces, now planted (though not visible in photos). The excavated lower level allowed the architects to tuck four floor levels below a residential-scale height limit while hewing to the tight footprint desired by the Canton.

The building takes full advantage of the region's "great craft tradition in concrete," noted Barkow. The exposed-aggregate retaining wall on the lowest level carries itself right through the cafeteria (top) and is echoed in the large size of the aggregate in the polished surface of the ter-



CONSTRUCTION DIAGRAM

Sophisticated simplicity: Jürg Conzett, partner in the structural-engineering firm of Conzett, Bronzini, Gartmann, helped strip what is a structurally complex building back to two simple volumes stacked crosswise over each other. With prestressed reinforcing, Conzett supported the cantilever of the workshop-level volume by structurally uniting the solid walls with the floor and ceiling, forming, in effect, a rigid box beam, augmented by slim shear walls within the space and in the core (diagram). Clear spans on this level and the similarly formed upper office levels range up to 50 feet. Massive steel inserts with pressure reinforcements were cast into the concrete to carry the massive loads where the volumes overlapped, configured to maintain a consistent thickness of walls and floors. The design also maintained the building's crisp corners by avoiding dropped headers and haunches. With so much concrete visible as a finish (with insulation placed on whichever side was not exposed), the design team carefully calibrated pour-joint lines and calculated shrinkage during cure to avoid cracking.

1. *Garden (below)*
2. *Lobby*
3. *Workshop*
4. *Loading*
5. *Existing factory*
6. *Office*

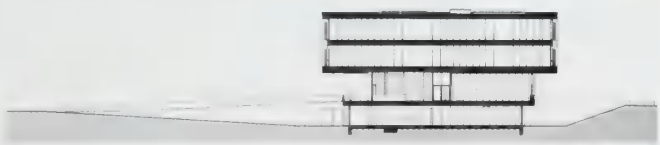
razzo floor. "The building feels like a single, homogenous pour," Barkow explains.The varied finishes—crisper and sleeker at the highest parts of the building, rougher and heavier at the bottom—visually convey the action of static forces, akin to the geological forces pent up in the region's stunning topography.

Mechanical systems have been carefully located to avoid deep ceiling plenums—the height limit again. A single-tube fluorescent fixture is wedged in the few inches between the acoustical ceiling panels and the slab at the cafeteria. The presence of Trumpf's power-tool assembly line has attracted a small maker of robotic prosthetics. Two electrical engineers, some software start-ups, and an insurance company have divided up the office space. Two or three more similar-size structures may be added next to the center at minimal loss of farmland.

The Innovation Center's assertive, contemporary image clearly sets itself apart from the red-tile roofs of the village's prevailing chalet-style aesthetic without overwhelming it or the tight residential scale that allows the village to fit so charmingly within its surroundings. At the same time, the center projects its identity in spite of the shotgun-marriage program. Whether Trumpf grows or shrinks, whether tenants stay or go, the Innovation Center will hold its own. ■

Sources
Concrete: *Vetsch Klosters*
Wood window wall: *Lötscher + Co.*
Exterior fabric rolling sunscreens: *Schenker Storen*
Hardware: *Glutz; INOX Forster; Regens; Kaba-Benzing*
Finish ceilings: *Montalta Nova (acoustical, perforated plywood); Monatage (expanded metal)*
Paints and stains: *Pittsburgh Paint*
Furniture: *Vitra; Wilde + Spieth; Artec; Castelli; Zoom*
Lighting: *Tulux; Zumtobel; Bega; Regens*

WWW For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.



EAST-WEST SECTION



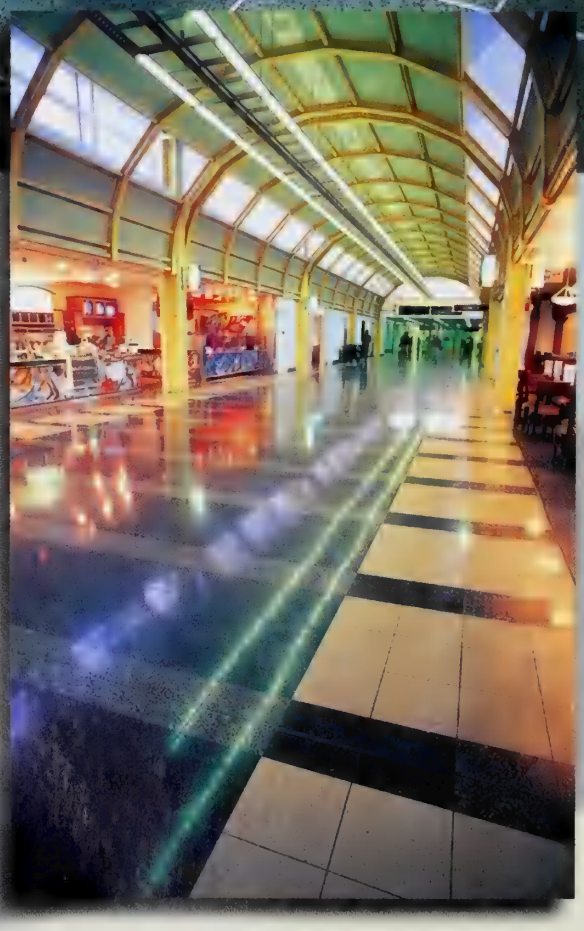
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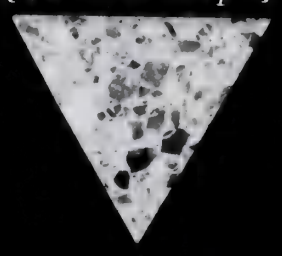
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Breaking the Mold

A SERIES OF SMALL OFFICE BUILDINGS HIGHLIGHTS THE IMPORTANCE OF VISUALLY ARRESTING STRUCTURES WITH AMPLE LIGHT AND A STRONG CONNECTION TO THE OUTDOORS.

By Suzanne Stephens



1.

New Albany, Ohio

Anderson Architects designs a camp-like setting for a clothing company geared to keeping its employees happy in the woods.



2.

Austin, Texas

A two-building complex by Lawrence Speck Studio of PageSoutherlandPage is clad in a local limestone to relate to vernacular buildings on the site.



3.

Beverly Hills, California

For a film-production company, Barton Myers Associates creates a dramatic mise-en-scène with steel and wood framing elements.



4.

Dusseldorf, Germany

Alsop Architects' 18-story tower sparks up a once-decrepit waterfront with a colorful screen-printed ceramic-frit-glass exterior.

www For additional small offices, and more information on the people and products involved in the following projects, go to Building Type Study at **architecturalrecord.com**.

For more than a century, the high-rise office building has served as the architectural icon of the workplace. The small office building has often got short shift in terms of design. These types of projects provide the bread and butter work for sizable firms whose clients think only in terms of a brick box by the highway or a square concrete doughnut in a corporate park.

Fortunately, exceptions occur, as the three low-rise projects and the diminutive tower on the following pages indicate. Here, serious effort has been made to inject architecture into this ignored building type. Whether it is a renovation, such as the Beverly Hills office building by Barton Myers Associates; or a new, two-building complex in Austin, Texas, by the Lawrence Speck Studio of PageSoutherlandPage; or the casual wood-framed, shedlike structures by Anderson Architects outside of Columbus, Ohio, each solution enlivens the office environment with a mix of materials and colors, the admittance of ample natural light, and, in several cases, varied interior spatial configurations. Gone is the sense of being trapped in the typical boxy, brown-glass, low-ceilinged, fluorescent-lit storage unit.

The only tower in this selection is small by skyscraper standards. Designed by Will Alsop Associates in London, and built on the waterfront of Dusseldorf, Germany, it comes with a strong urbanistic agenda: to attract "creative" types, such as advertising and media firms, to a revitalized waterfront. The visually riveting building abuts a narrow through-block plaza that takes pedestrians past the entrance on one side of the tower to the waterfront on the other.

Dusseldorf's Colorium building isn't the only urbanistically inclined structure. Lawrence Speck's Computer Science Corporation in Austin also faces a lakefront that is being renovated and upgraded as part of a downtown renewal. And Barton Myers' renovated warehouse can make urbanistic claims, as well. Located in an industrial section being gradually transformed by the arrival of offices for recording studios and film production companies, the building is next door to an old icehouse Myers also remodeled, now occupied by Madonna's Maverick Records.

Anderson Architects' scheme for Abercrombie & Fitch introduces another kind of urbanity as its response to the corporate office park. Here, a headquarters is conceived as a villagelike cluster of structures with easy access to outdoor recreational areas. Clearly, all these alternatives to the prosaic small office building benefit both employees and the community. Now, more clients need to be persuaded. ■

Abercrombie & Fitch Headquarters
New Albany, Ohio

1 **ANDERSON ARCHITECTS' DESIGN FOR A CAMPLIKE SETTING IN THE WOODS REVS UP THE IMAGE OF A YOUTH-ORIENTED CLOTHING COMPANY.**

By David S. Morton

Architect: *Anderson Architects—Ross Anderson, FAIA, principal in charge; MJ Sagan, AIA, project director; Michael Nikolajuk, project architect, office campus; Caroline Otto, project architect, distribution center; Scott Lauer, project manager*
Associate architect: *NBBJ—Daniel Pickett, AIA, principal in charge; Robert Hatfield, project architect*
Client: *Abercrombie & Fitch*
Consultants: *Lantz Jones Nabraska (structural); M-Engineering (mechanical); EMH&T (civil); BBC&M (geosciences engineering); Sedlak (process engineer for distribution center); Joe Karr & Associates (landscape)*

Size: *1.1 million square feet*
Cost: *$130,000,000*
Completion date: *2001*

Sources
Glue-laminated beams and columns: *Unit Structures*
Insulated sandwich panel: *R-Control Building Systems*
Custom steel trusses and structural steel: *Ferguson Steel*
Light gauge metal framing: *Dietrich Industries*
Masonry cladding: *Wellnitz*
Metal and glass curtain wall: *Kawneer*

WWW For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

A decade ago, Abercrombie & Fitch, the 110-year-old clothing retailer, scrapped the leather elbow patches and chinos and focused all its energies on designing baggy cargo pants and muscle shirts for the collegiate set. In the late 1990s, the newly youthful Columbus-based company broke with its corporate parent, The Limited. Last year, Abercrombie moved into its own 300-acre-campus headquarters among the country-club estates 10 miles from Columbus.

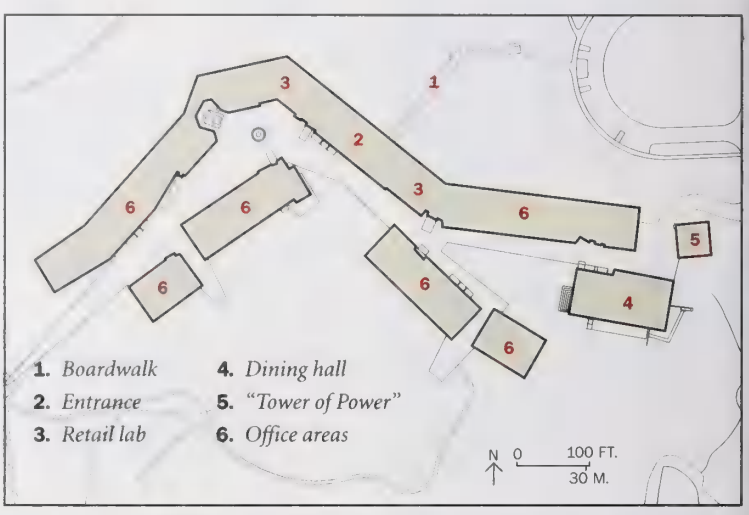
Program

The Columbus area is a giant city-suburb so thoroughly average that demographers have made it America's de facto test-marketing capital for consumer goods. Within this context, Abercrombie's C.E.O., Mike Jeffries, wanted to create an office complex with a definite character and identity. He asked Anderson Architects to pretend it was designing a sylvan camp deep in New York's Adirondack region, the area that had originally inspired the company's founders in 1892.

Solution

Ross Anderson and project director MJ Sagan sited the headquarters deep in the thick of the forest, where nothing of the outside world can be seen or sensed. (The company's 750,000-square-foot national distribution center, planted at one corner of the property, proved harder to hide in tree cover.)

To avoid dominating the natural surroundings and to foster a village-like community, Anderson proposed breaking down the headquarters into smaller sheds, roughly analogous to lakeside summer lodges. These two-story, pitched-roof buildings are arranged along a bow-shaped central street across which employees travel, using scooters, the nonmotorized vehicle of choice.





David S. Morton is the news editor of the Cleveland Free Times.



A bow-shaped central street forms the spine of the office campus, with the dining hall at one end (left). A tree-house meeting room (opposite page, below) signals the location of the C.E.O.'s offices underneath. Wood decks, porches, and plazas offer numerous meeting spots in the villagelike complex.

The dining hall, Wexner Commons, is clad in Cor-Ten steel (below), while entrances to office sheds (bottom left) are sheathed in cedar. The "Tower of Power" (bottom right), for utilities, is wrapped in wood slats over concrete block.







Even in this corporate village, one building—actually a chain of sheds—dominates the others. The single snaking structure forms the whole north perimeter of the street, marked by a central segment, which, with its bulging roof and the two-story gape of a timber-frame main entrance, can be seen easily from afar.

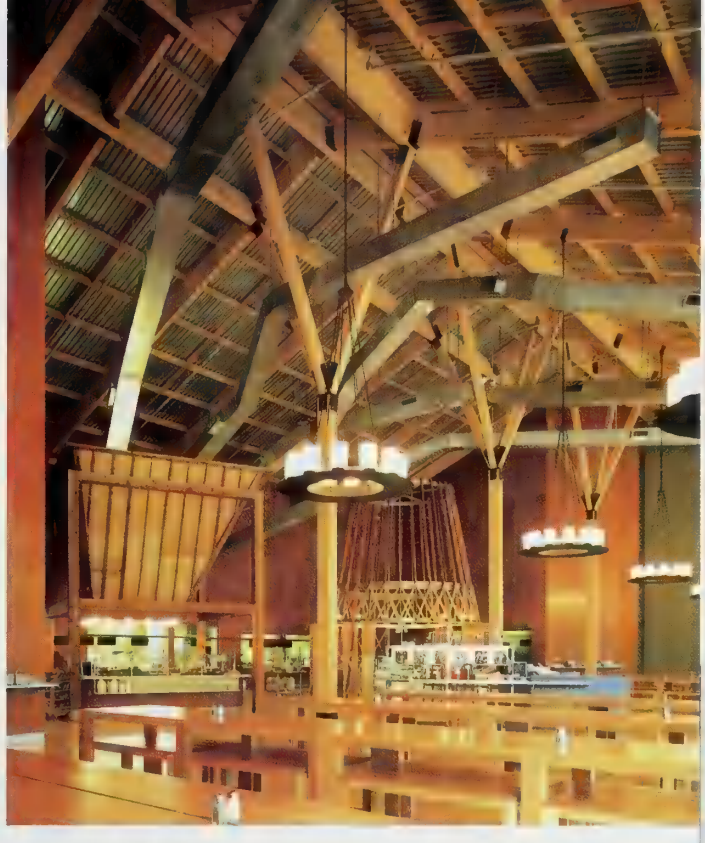
Although this is a campus, the client wanted to create a strong distinction between being inside and outside the complex proper. Hence, the walls facing out to the parking areas or the trees are clad in corrugated concrete board and punctured only by small square windows. But within the complex, on the central street where the sheds face each other, surfaces are pale tinted plaster and stucco, and large, loftlike, two-story gridded windows become the prevailing architectural features.

The sheds can accommodate 550 fashion designers, "merchants," graphics people, and marketing and finance personnel in a mix of flexible workspaces. Key to breaking up the otherwise imposing consistency of shed and window-grid motifs are the many multiuse outside rooms, includ-



DINING HALL

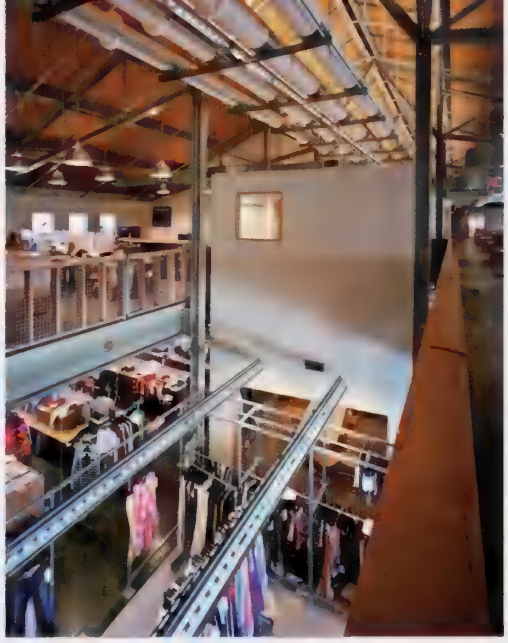
1. *Dining*
2. *Food preparation*
3. *Dishwashing*
4. *Food service*
5. *Fireplace seating*
6. *Front porch*
7. *Gym/exercise*



Inside the Cor-Ten steel–clad barn, glue-laminated beams and columns create a spacious dining hall (above). Other gathering spots include the indoor/outdoor fireplace at "The Bite" (below), located on the northwestern part of the office campus.



The sheds accommodate a range of functions, such as working and meeting areas (right), along with the C.E.O.'s conference room (far right) and reception areas (below). Small rooms running down the spine of the halls (opposite) contain storage, bathrooms, and other services.







ing the several fireplaces one discovers around the campus. And while entrances to the central street are treated in cedar—with wood entrance "carpets"—each portal is handled differently. One hides under an extended dormer. Another is contained in a cedar box that appears to pivot out from the main building.

At the end of the central street sits Wexner Commons, which, despite its location, is the spiritual heart of the place. Appearing on the outside to be a slightly oversize red barn, the large volume of its triple-height interior comes as a dramatic surprise to first-time visitors. The wrapping of Cor-Ten steel helps diminish the sense of bulk and gives the building a rusty gleam that stands out from the otherwise pallid building colors.

Commentary

Abercrombie & Fitch's office complex is deliberately isolated. Outside influences have been banished in favor of immersion in its brand identity, with the natural setting providing both relief and inspiration. But one imagines that workers might benefit from interaction with other creative milieus. The relentless thumping of techno music—the same soundtrack used in Abercrombie retail stores—loops endlessly through every space of the campus, replacing the buzz of real life. The headquarters succeeds on its own terms, but presents this conundrum: How does one retreat from a retreat? ■



Computer Sciences Corporation
Austin, Texas

2

A PAIR OF LOW-RISE BUILDINGS BY LAWRENCE W. SPECK STUDIO OF PAGESOUTHERLANDPAGE RETURNS OLD URBAN VALUES TO DOWNTOWN AUSTIN.

By David Dillon

Architect: *Lawrence W. Speck Studio of PageSoutherlandPage—Matthew F. Kreisle III, AIA, principal in charge; Lawrence W. Speck, FAIA, lead designer; E. Douglas McClain, P.E., F. Keith Hall, AIA, project managers; Gwen Jewiss, AIA, Peter Hoffmann, project architects; Tom Hurt, Rommel Sulit, Scott Grubb, design team*
In-house interior designers: *Wendy Dunnam Tita, Assoc. AIA, Jen Bussinger, Bob Stapleton, Rheannon Cunningham, design team*
Engineers: *PSP Engineering (structural, MEP, and civil); Architectural Engineers Collaborative; Jaster-Quintanilla & Associates (structural)*
Contractor: *Hensel Phelps Construction*
Client: *Computer Sciences Corporation*

Size: *350,000 square feet (two buildings)*
Cost: *$65,224,894*
Completion date: *2001*

Sources
Reinforcing steel: *Capital City Steel*
Lueder limestone cladding: *Mezger Enterprises*
Curtain wall: *WAUSAU Window and Wall Systems*
Glazing: *Viracon; GE Lexan*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

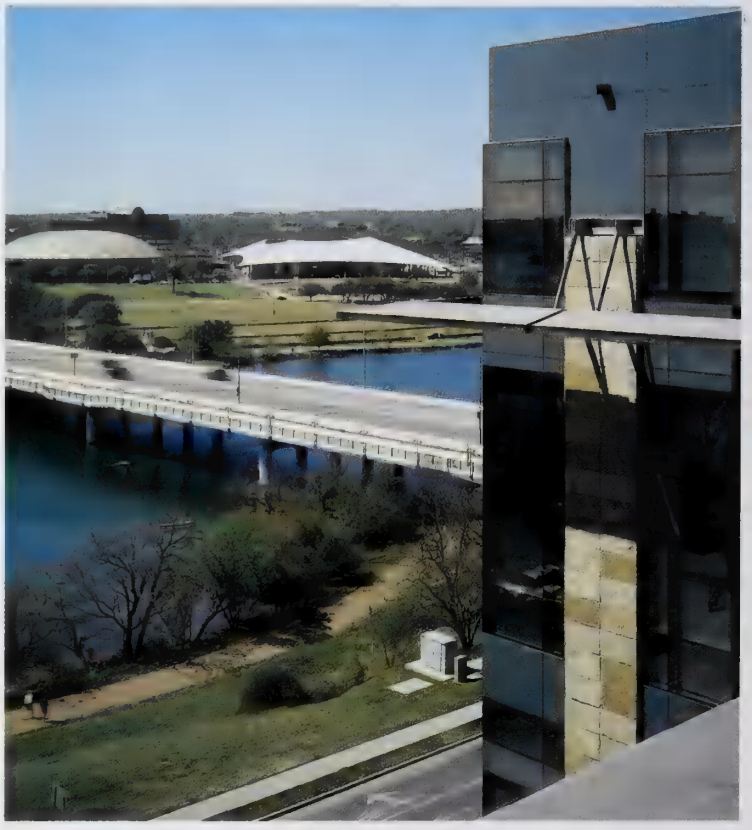
The new Computer Sciences Corporation (CSC) buildings in Austin, Texas, reflect an old-fashioned urbanism of street, block, and square that the city once embraced and then almost lost. In the 1980s and early 1990s, its downtown became a dumping ground for hunkering modern office towers that blocked views, snuffed out street life, and generally turned it into a bad Houston or Dallas parody. In a city celebrated for its kicked-back, boots-and-blue-jeans culture, this was a startling transformation, like seeing Willie Nelson in Gucci.

Program

CSC, the world's third-largest software maker, was an unlikely urban pioneer. Like many such companies, it preferred semipastoral suburban locations with lots of trees and a gloss of anonymity. Its first home was north of Austin, on the fringe of the Hill Country; later, it started looking at rolling sites south of the city, including one directly over the fragile Edwards aquifer.

Enter Austin mayor Kirk Watson with an offer CSC couldn't refuse: four acres of city land on the southern edge of downtown, overlooking Town Lake and within walking distance of stores, restaurants, and apartments. Although

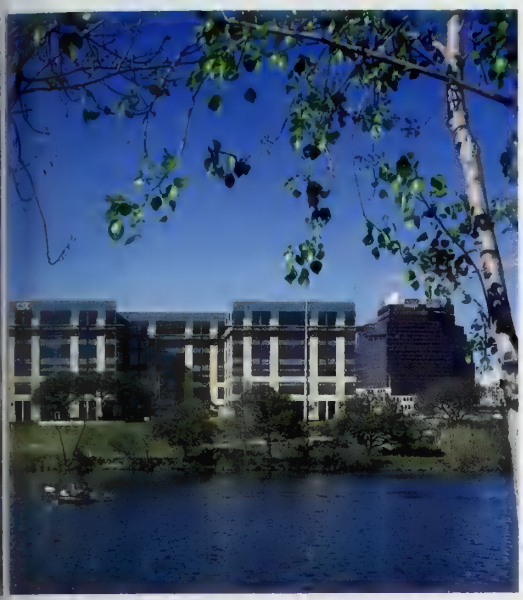
Contributing editor David Dillon is the architecture critic for The Dallas Morning News.



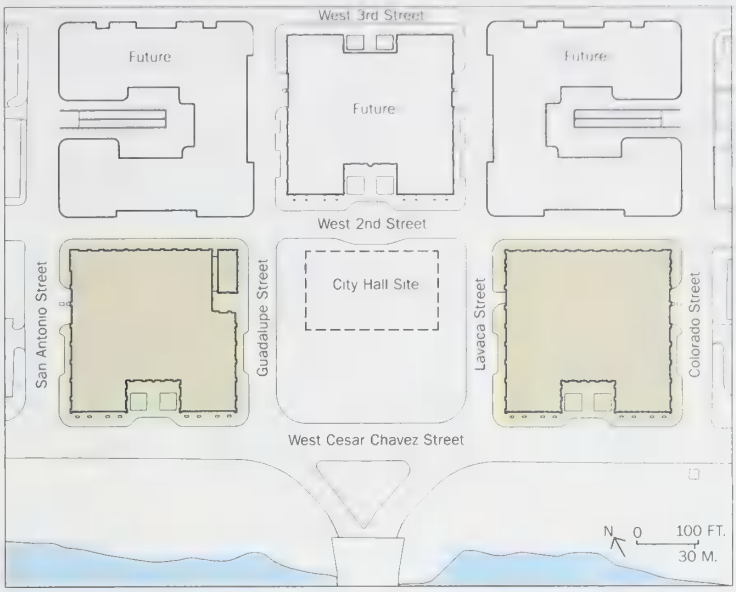
the area still featured a motley collection of warehouses, parking lots, bars, and clubs—not to mention a water-treatment plant—the mayor persuaded the company that its presence there could make it a flourishing urban neighborhood and a new gateway to downtown.

"It was a radical move for the people at CSC," says Lawrence Speck, design architect for PageSoutherlandPage. "They had major concerns about security, access, parking, and the size of floors. Our challenge was to reinvent the suburban office building they had in a downtown location. To our surprise, they went along."

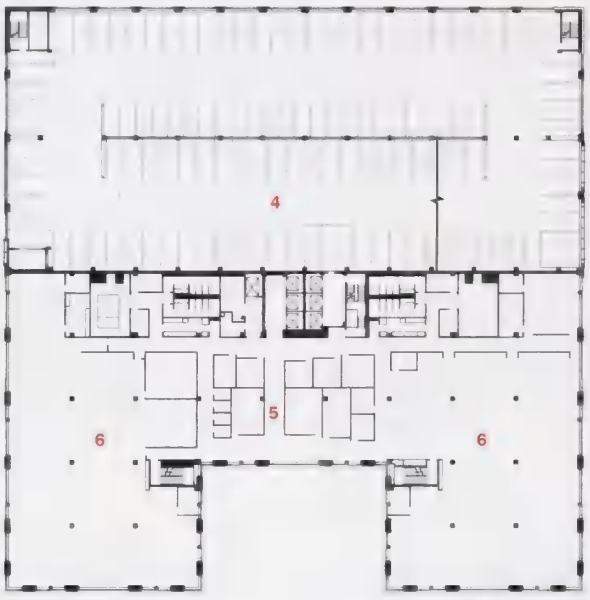
CSC earned additional good-corporate-citizen points by agreeing to Speck's proposal for three six-story buildings instead of one 20-story tower and siting them to frame a new city hall being designed by Antoine Predock. They would fill out their blocks, as good urban buildings should, and include shops, restaurants, and cafés at the corners. A



Located on the southern edge of downtown, the two-building CSC complex (one half shown at left) faces Town Lake but also engages Austin's street grid. One of the buildings even wraps around a beloved 19th-century store (below). A copper sunscreen acts as a cornice (opposite) for each of the glass-and-limestone structures.









1. *Entrance*
2. *Lobby*
3. *Retail*
4. *Parking*
5. *Conference rooms*
6. *Offices*

chunk of one building would be carved away to accommodate the restored J.P. Schneider dry goods store, a beloved 19th-century limestone structure with a plausible future as a restaurant. All cars would be tucked away in attached garages finished like the rest of the complex.

Here, in short, was a New Urbanist corporate development without the period costuming and empty nostalgia for times gone by. Even though the planned third CSC building was scrapped because of the high-tech meltdown, the basic scheme remains intact, and two structures are now completed.

Solution

CSC is a conservative company that had no interest in aggressive, cutting-edge architecture. Consequently, its buildings are quiet, crisp, and tailored, with piers of local Lueders limestone enclosing planes of gray, green, and white glass, some fritted, some not, with a copper sunscreen for a cornice. The color of the limestone ranges from cream to caramel, creating an attractive quilted facade that recalls the older warehouses and commercial structures in the area. The sunscreen is a neighborly gesture to Predock's city hall, projected to be a copper-and-stone sculpture with a plaza, terraces, and fountains. A tunnel connecting the two CSC buildings runs beneath the plaza, thereby resolving several knotty security and access issues. Each building contains a small courtyard facing Town Lake that seems to pull the riparian landscape inside, as though one were an extension of the other. At night, the buildings become twin lanterns marking the southern entrance to the city.

The interiors are a mixed bag. The first-floor lobbies, with their backlit glass walls, exotic woods, and bold red, yellow, and blue columns, display a certain Mediterranean brio that is entirely appropriate for Austin, with its slanting light recalling Tuscany. It is easy to imagine managers moving staff meetings into these spaces just for the sensory stimulation. The floors above, on the other hand, are conventional arrangements of modular offices and conference rooms, some with nice views of Town Lake and the downtown skyline, but none that require a long second look.

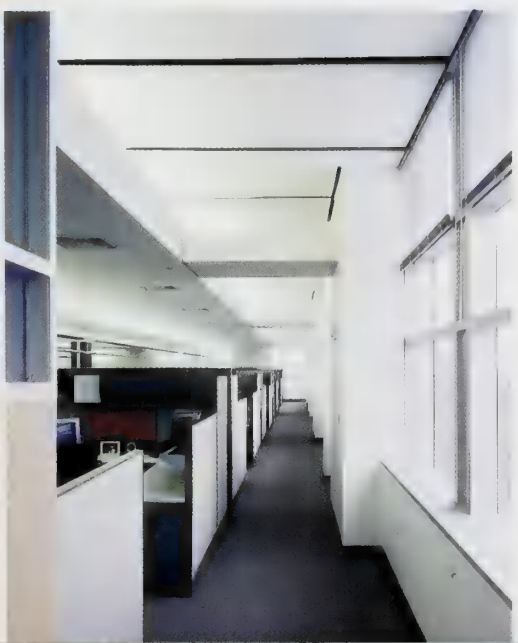


Commentary

The strength of the CSC complex is its urbanity. Its buildings were conceived as parts of a civic and commercial landscape, not as discrete, grandstanding objects. They don't strut or preen; they are content to fit in rather than take over. In an age of steroidal architecture, you have to applaud that. ■







Each of the CSC buildings has a first-floor lobby with backlit glass walls, exotic woods, and columns painted red, yellow, or blue (above). Office floors combine conference rooms and areas for workstations (left).

9350 Civic Center Drive
Beverly Hills, California

3 **BARTON MYERS ASSOCIATES MAKES AN OLD WAREHOUSE WORK AS A HIP OFFICE BUILDING BY BRINGING LIGHT INSIDE AND PUTTING CARS ON TOP.**

By Thomas S. Hines

Architect: *Barton Myers Associates—Barton Myers, FAIA, principal in charge; Stephen Lee, associate in charge; Beth Holden, Isabelle Massicotte, Don Albert, Don Mills, AIA, Aaron Campbell, design team*
In-house interior designers: *Edward Levin, associate in charge; Sigrid Geerlings, project manager; Peter Rutti, Melissa Schrock, Kengo Nozu, Jorge Narino, design team; Peter Robertson, graphic design*
Client: *Bank of America (trustee)*
Consultants: *Ishler Design & Engineering Associates (structural); Davidovich & Associates (MEP); The J. Byer Group (geotechnical); Hotron Lees Brogden (interior lighting); Arup Acoustics (acoustical)*
Contractor: *Peck/Jones Construction; Corporate Contractors (interiors)*
Size: *40,000 square feet*
Cost: *Withheld*
Completion date: *February, 2002*

Sources
Steel structure: *Plas-Tal (fabrication and erection)*
Sheet metal for exterior cladding and roofing: *Weiss Sheet Metal*
Aluminum and glass curtain wall: *Vistawall; The Carvist Corporation (glazing contractor)*
Concrete: *ReyCon Construction*
Skylights: *Metcoe Skylight Specialties*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Intermedia, an indie film production company, recently moved into a remodeled Beverly Hills office building by Barton Myers Associates. In one of the company's hits, *Sliding Doors*, Gwyneth Paltrow plays the same character in two parallel, interwoven stories. In the first, she misses, by a split second, her Manhattan subway connection; in the second, she slips through the sliding doors and makes it. The two-track film then contrasts her subsequent journeys as a parable on contingency in travel and in life.

Though less dramatic in timing and circumstance than *Sliding Doors*, Barton Myers's renovation of an obsolete 1930s warehouse offers an innovative response to urban contingencies that shaped a variety of architectural scenarios.

Program

Located in a once industrial district of the city, the property is owned by a family trust and managed by Bank of America, which wanted either to expand the existing warehouse or tear it down and construct a new building. An entirely new structure would have cost more, been subjected to zoning requirements for greater setbacks, and required more parking based on total square footage. It would also have necessitated costly underground excavation and delays in the approval process.

Thomas S. Hines teaches history and architecture at UCLA.

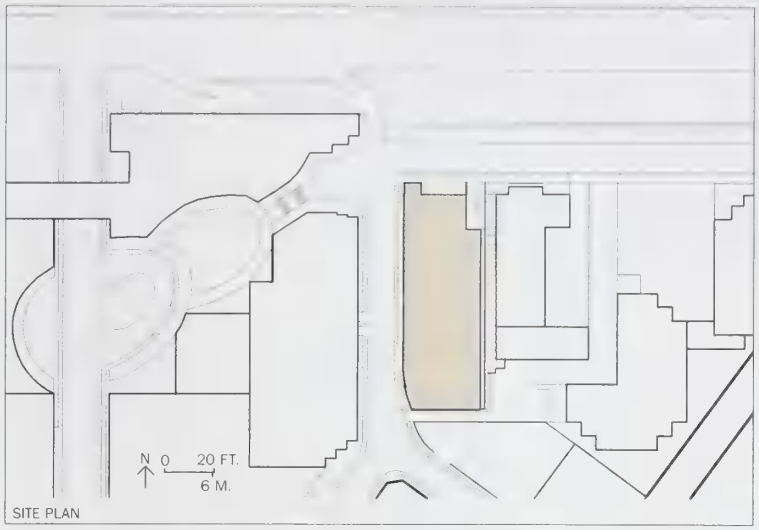


Solution

The alternative scenario was a major remodeling and enlargement of the old warehouse. But this raised the formidable problem of on-site parking. Excavation under the existing building would be difficult and expensive, while ground-floor parking with offices above would be unsightly and preclude the tenants having visual and physical access to the street.

The solution that made the option viable was to use the roof of the two-level building for open-air parking in the tradition of Los Angeles automobile showrooms. While the Myers proposal was first deemed "crazy" by the clients, it proved to be a unique, cost-saving answer. New steel bracing supports this rooftop parking and seismically reinforces the 39,000-square-foot structure,

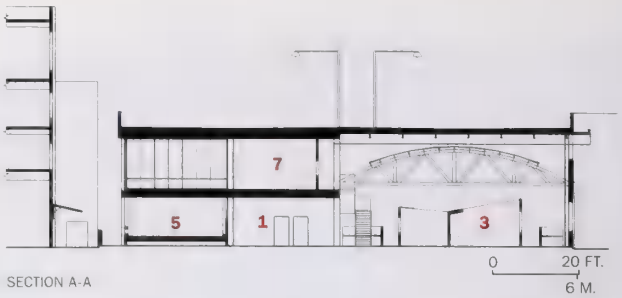




SITE PLAN

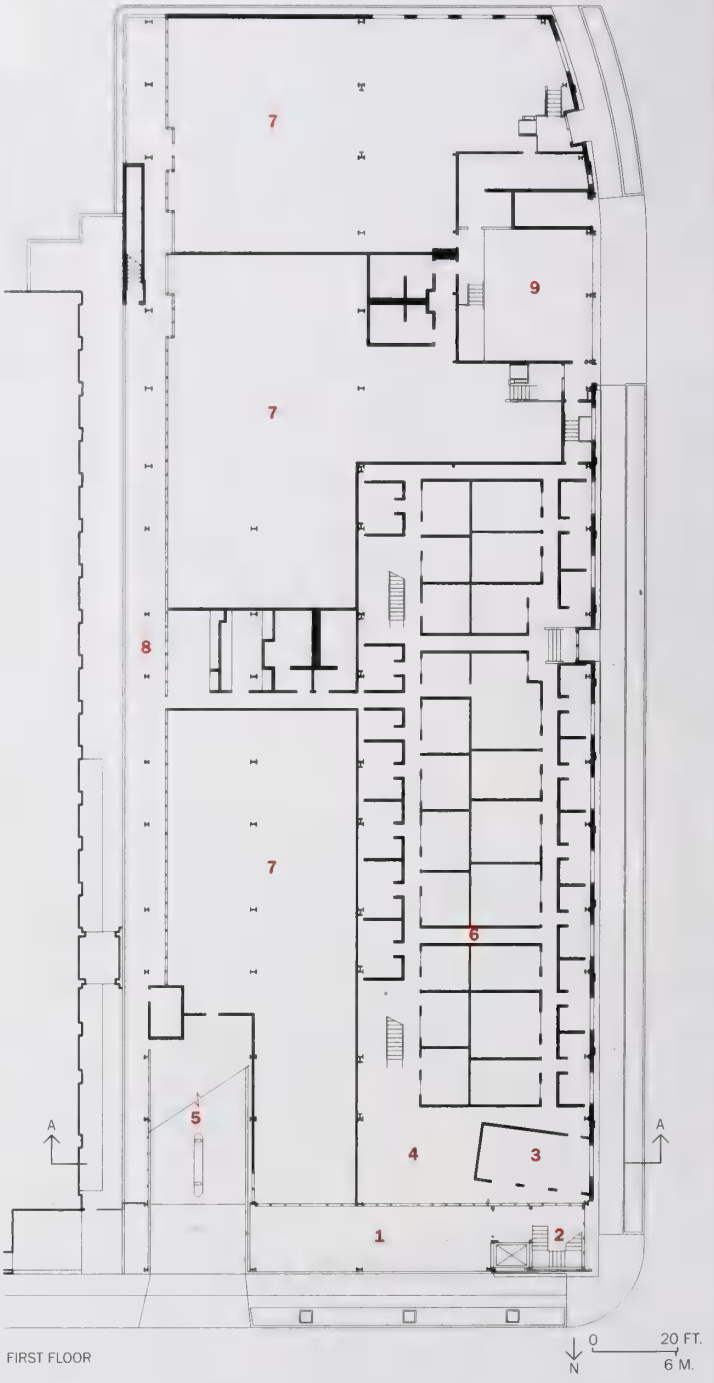
A new L-shaped addition wraps around the old warehouse, which has been retrofitted with new glass-and-steel elevations (opposite and this page).





SECTION A-A

1. *Entry court*
2. *Stair/elevator tower*
3. *Conference room*
4. *Reception*
5. *Parking ramp*
6. *Offices*
7. *Tenant space*
8. *Open walkway*
9. *Loading dock*



FIRST FLOOR

with construction costs coming in at approximately $150 per square foot.

As reconstituted, the major work space occupies the western half of the old warehouse and is capped by a handsome wood bowstring vault, a remnant of the older structure. A new L-shaped extension wraps around the renovated space and has a mezzanine that doubles available work space. Partially enclosed car ramps to the roof run through the eastern part of the original building. The view of the vaulted wood truss provides workers and visitors on the ground floor and mezzanine with a sense of texture and patina not usually found in the slick environments of most Hollywood production offices.

Consciously or unconsciously, clients and office workers have probably come to realize that this sophisticated integration of old and new offers a respite from the boredom of most urban offices, while the height of the vaulted space counters any feelings they might have of workplace claustrophobia. The sense of openness is enhanced by skylights on the roof, street-front walls of glass, large punched windows in the original brick west wall, and clerestory glazing. In contrast to the dominant textures of steel, glass, wood, and brick, workstations in the office areas are painted from a palette of warm green and salmon colors.

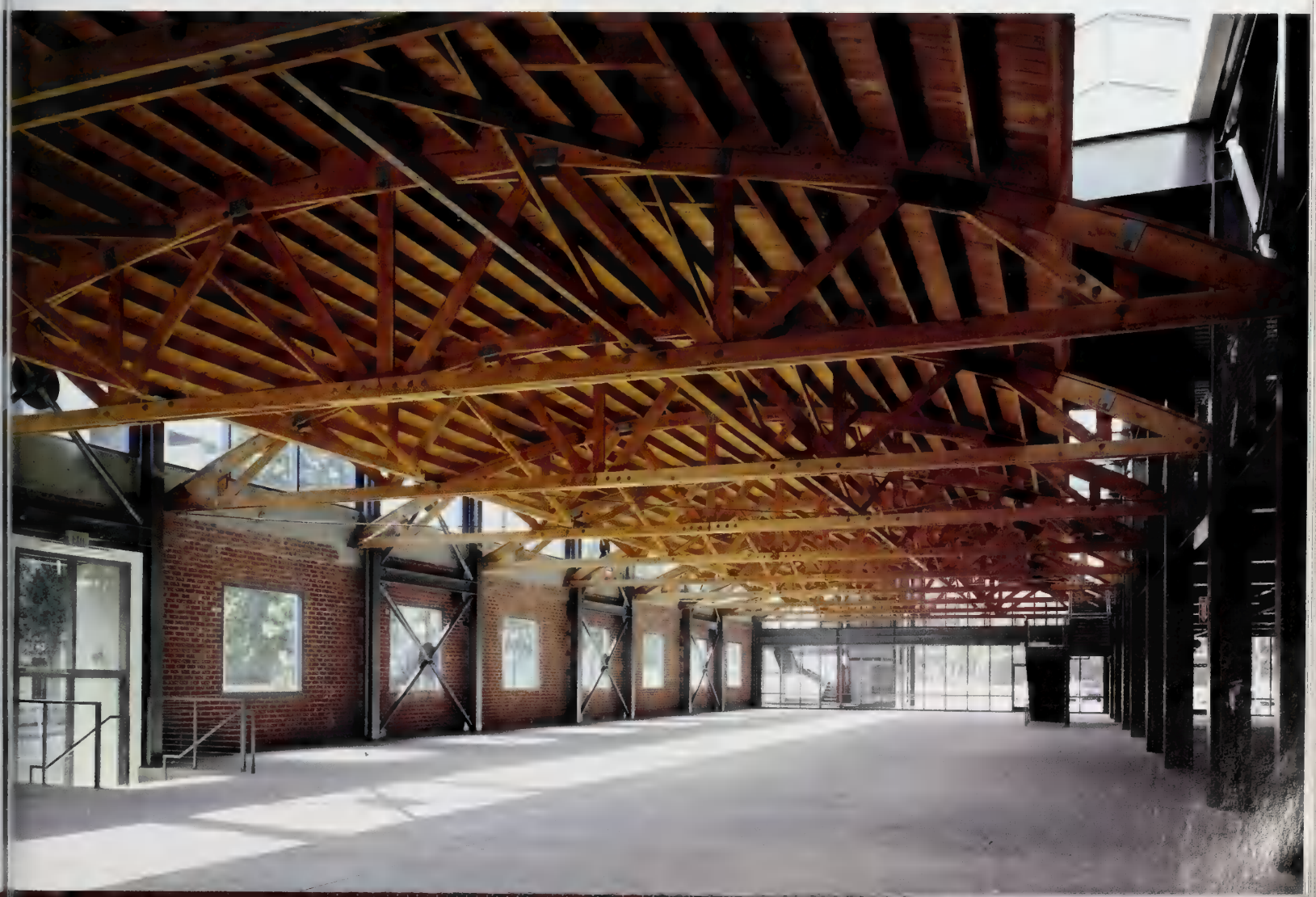
Commentary

At the northwest corner of the complex, an opaquely glazed elevator-and-stair tower serves the mezzanine and rooftop parking areas. Seen from the street through the building's glazed front, the sculptural richness of the old bowstring truss and the new steel frame helps connect the building to the old Ice House next door (now occupied by Madonna's Maverick Records), which Myers also renovated.

At the rear of the building is a synagogue, another vestige from prerenovation days and a poignant counterpoint to the main tenant—Intermedia—the epitome of hip, 21st-century Hollywood. Such variety in its tenants echoes the building's integration of diverse structural, programmatic, and material components—historical and contemporary. For cities that have a surplus of older, industrial structures but need new office space, Myers's resolution of competing scenarios offers a model of cost-saving efficiency and environmental richness. ■



Myers added a mezzanine level to the old warehouse but kept the original bowstring trusses (left and below). A new glass tower provides vertical circulation to the office spaces (opposite).



Colorium
Dusseldorf, Germany

4 **ALSOP ARCHITECTS HELPS A ONCE-INDUSTRIAL HARBOR FIND ITS FUTURE BY WEAVING A RICH TAPESTRY OF COLOR INTO A NEW LANDMARK.**

By James S. Russell, AIA

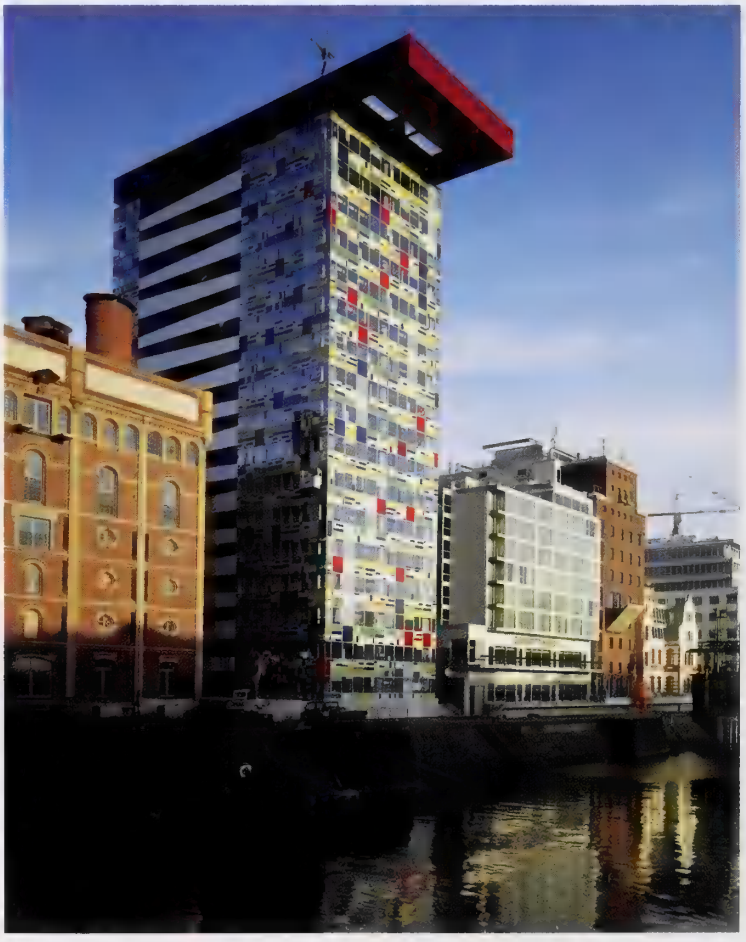
Architect: *Alsop Architects—Will Alsop, principal in charge; Jonathan Leah, project director; Uwe Frohmader, project architect; Christophe Egret, Sonia Hibbs, Andy McFee, Neil Pusey, Sabina Riss, Shaun Russell, Max Titchmarsh, design team*
Client: *Ibing Immobilien Handel*
Engineers: *Arup (structural); intecplan (mechanical)*
Consultants: *DS-Plan (facade); Hosser, Hass und Partner (fire safety); Schlotfeldt Licht (lighting)*
Project manager: *Drees & Sommer*

Size: *18 stories; 133,000 square feet; 4,700-square-foot typical floor*
Cost: *Withheld*
Completion date: *June 2002*

Sources
Curtain wall: *Bug-AluTechnic*
Glass processing and printing: *Eckelt Glas*
Elevators: *Otis*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

The city of Dusseldorf has put eye-catching architecture front and center in its effort to revitalize a derelict industrial riverfront. With the intent of differentiating itself from the dozens of similar-size European cities with which it competes, the city has created a "Media Harbor." Its strategy was to attract a wide variety of advertising, multimedia, and design firms around a core of television broadcast facilities. But earlier phases of the project have appealed to a much wider range of tenants, according to Christian Simanek, an executive with the local office of the real estate firm of Jones Boone LaSalle. "It has attracted branches of large design and architecture firms," he says, "but also high-quality office tenants like law firms and consultants." The striking Colorium is among the latest additions in a newly developed street in the harbor.



Program

The port agency prepared sites for redevelopment, including the conversion of many older structures to new business and residential uses. To attract image-conscious advertising and media firms, it offered open sites for new development, explicitly requesting developers to team with architects of international stature. Buildings by Fumihiko Maki, David Chipperfield, and Steven Holl have risen among the beefy brick warehouses, along with a sinuous, three-building complex built by Frank Gehry. The office construction has drawn trendy bars and restaurants, enlivening the once-overlooked residential streets that thread their way amid the former industrial structures.

Solution

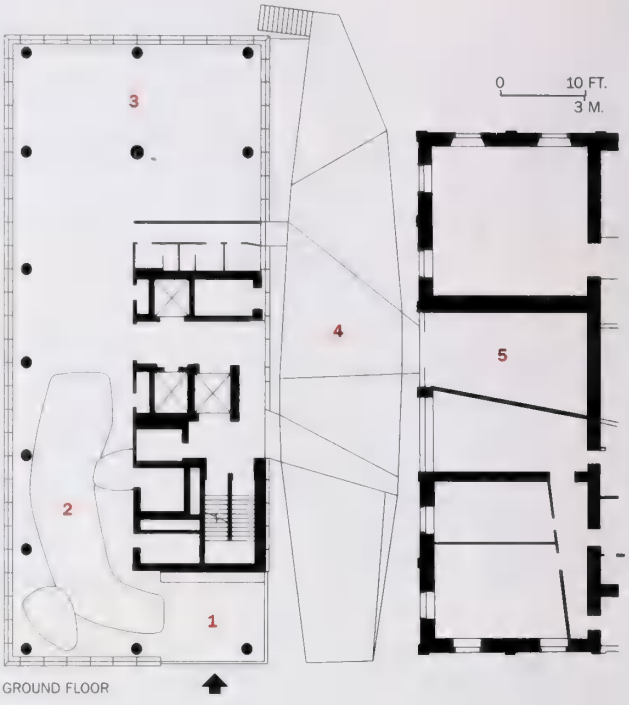
Like other new buildings in the Media Harbor, the Colorium strays far from the rigid norms of American-style speculative office development. For one thing, both client and city wanted an architectural landmark. But London-based Alsop Architects quickly discarded their sculpturally complex initial instincts, bowing to numerous site constraints. "We were required to negotiate the footprint of our project with that of neighboring projects, so we've aligned the size



A red-painted "lantern" enclosing mechanical equipment (opposite) and a tapestrylike curtain wall reach out across the Rhine River. Close up, on the street side (this page) the building boogie woogies a once-derelict district into a new dimension.

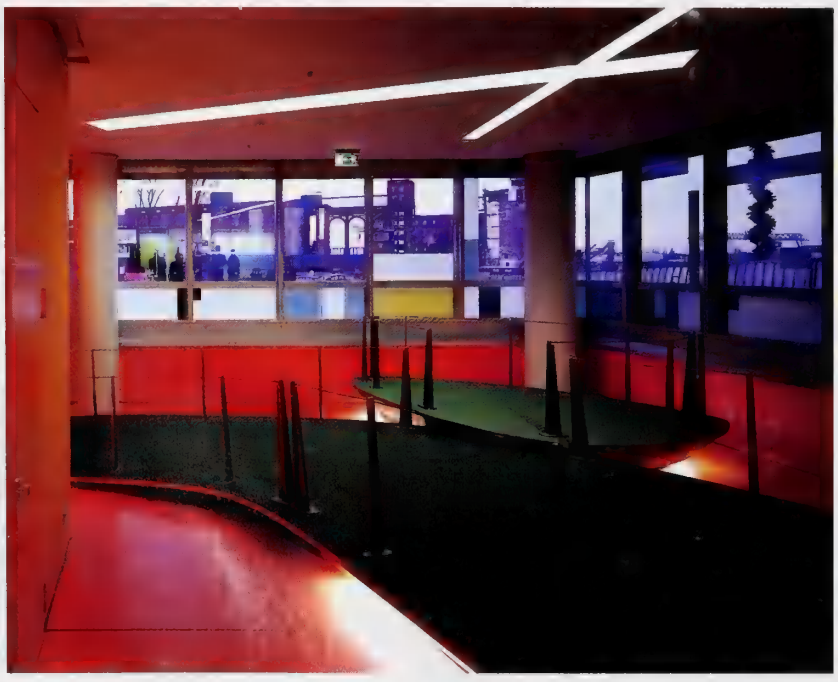


1. *Entrance*
2. *Lobby*
3. *Tenant*
4. *Public walkway*
5. *Adjacent development*



GROUND FLOOR

The color pattern was refined to impinge minimally on vision-glass areas (lobby, below) while maintaining the overall carpetlike design (street-facing elevation, above). Only 17 unique lites were used.



and setbacks to existing buildings," says Uwe Frohmader, Alsop's project manager. The floor plan shrank further when the city mandated a walkway linking the street to a new waterfront pedestrian promenade. (The complying ramp and metal stair are shown in plan, above, but were not completed when photos were taken). It became clear that the client's space requirements could only be accommodated in a prismatic slab, and then only with the most minimal of vertical cores. The local code permitted a single exit stair with the use of exterior, fire-separated balconies.

The designers turned to graphic means to heighten the tower's visual impact, overlaying the curtain-wall grid with boldly colored patterns in screen-printed ceramic-frit glass so that the onlooker would perceive an 18-story tapestry, rather than a decorative treatment alternating with bands of glass.

Commentary

Whether you see Mondrian in its extraordinary walls or a patchwork of nautical burgees, resistance to the Colorium's appeal is futile. The larger question is: Does sexy design make sensible urban-redevelopment strategy? It's a little too soon to tell. Earlier projects, especially the Neuer Zollhof complex by Frank Gehry, have attracted international attention and filled with tenants, putting Dusseldorf on the map in a way that traditional economic-development efforts failed to do. But the building is only partly tenanted, which Frohmader attributes to Germany's sluggish economy. Simanek wonders if the floors aren't too small.

But it is the very modesty of its scale that allows the Colorium to be expressive without being aggressive. With it's high-design neighbors, it creates the strong local identity this heterogeneous area lacks. There are lessons here for design-averse American real estate developers. ■

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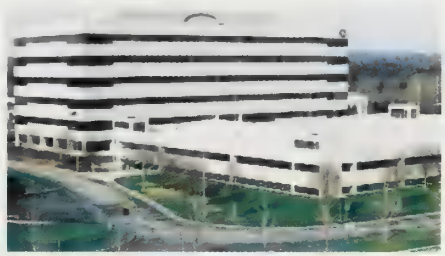
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Urban Infrastructure: The "Out of Sight, Out of Mind" Mentality Is an Outmoded Concept

ARCHITECTS HAVE NEW DESIGN AND BUSINESS OPPORTUNITIES TO IMPACT THE BUILT ENVIRONMENT

By Barbara Knecht

Hidden behind walls, buried in the street, or set beyond chain-link fences, infrastructure is largely invisible. Because it's out of sight, it's out of mind to most of us, as well, when we turn on the lights, gas, and water. Infrastructure is nearly everything that isn't actually the skin and structure of buildings. It is the wires, lines, and pipes that run under and over roadways and bridges, through tunnels, and into the walls to the fixtures and gadgets that serve our lives. It's also the plants and generators that feed those lines and cables with the services that they need. And it is the roads and streets and transit systems that get people and goods to and from cities and in and out of buildings. And, finally, infrastructure includes the switches and controls that keep all those systems and networks up and running. Still, most people's tangible connections seem to be limited to smokestacks belching pollutants, roadways closed down for months of repairs, or rolling brownouts.

In a supporting role to buildings and neighborhoods, infrastructure that safely carries away trash and waste water rarely gets credit for the terrific quality of life that most people enjoy. And despite dire warnings, its systems don't fail often or catastrophically enough to stimulate public interest in funding better design or maintenance.

This apparent lack of concern is the major dilemma facing our aging infrastructure systems today. "Although we tend to plan the surface of our cities, we have historically ignored the subsurface, the underground," observed Ray Sterling, the chairman of the International Society for Trenchless Technology and the director of the Trenchless Technology Center at Louisiana Tech University, in Ruston, Louisiana. "There are probably only a handful of cities in the world that plan the underground to make it an effective support for the rest of the city. And, because of this historical lack of planning, we pay a very high cost for what we do underground now."



Peeling back the street surface of Lower Manhattan in 1913 revealed a tangled web of pipes and ducts, much of which is still part of New York City's complex infrastructure, and has been for over 100 years.

If infrastructure is as critical to the quality of the urban environment as buildings are, it seems curious that architects are rarely involved in the planning and design of it. This is especially puzzling since, first of all, infrastructure design is another business opportunity for architects, as the projects here show. Secondly, if architects knew more about these systems, they could integrate them into the design of any project, as some are now doing by incorporating photovoltaics as design elements into roofs and facades [RECORD, January 2001, page 121].

Infrastructure as public art

And yet, it was two artists who first raised the bar for integrating public art and urban infrastructure planning. Michael Singer, a Vermont-based visual artist, got into major infrastructure with the widely acclaimed Transfer Station and Recycling Center in Phoenix, Arizona, which he

Barbara Knecht is an architect and principal of a New York City-based consulting firm. She writes about architectural technology, design, and housing policy.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 238 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Identify the current state of infrastructure systems.*
2. *Explain potential problems with infrastructure systems.*
3. *Describe new, self-sufficient infrastructure systems.*

WWW For this story and more continuing education, as well as links to sources, white papers, and products, go to **architecturalrecord.com**.

Transfer Station and Recycling Center Phoenix, Arizona

The designers and the Department of Public Works integrated the project (this page) into the urban fabric of the community.





designed with artist Linnea Glatt and Black & Veatch engineers between 1989 and 1993. "These infrastructure projects are not just the plant and the walls around them; they affect entire systems," says Singer. "In Phoenix, we wanted to think about how large interventions evolve and what they become over time. And in 10 years, the landscape has grown in and the site looks completely different than when it was first finished."

The Public Works Department had the foresight to realize that a fast-growing community such as Phoenix would eventually require additional waste-transfer facilities, so they adopted a good-neighbor policy from the beginning with a program that called for a major education component, with platforms for viewing the recycling, trash-separation, and transfer process, and public-awareness programs to educate residents about the ways people and cities create waste. An informed and sensitized public, the administrators theorized, will waste less and appreciate the challenges of waste management more.

ALTERNATIVE IDEAS ABOUT THE USE OF ENERGY ARE AT THE HEART OF IMAGINATIVE INFRASTRUCTURE SOLUTIONS.

"My understanding comes out of the Phoenix experience," says Singer, who works with utility companies and communities here and abroad to develop major plants that address the environmental, social, cultural, and economic needs generated by infrastructure projects. "Communities are going to have to accept new plants, and builders have to understand that there are real concerns that have to be addressed. It is more than architectural treatment, but there are design and engineering solutions to problems." He leads design teams that tackle urban renewal, waterfront development and reclamation challenges, and gardens designed to filter air and water for facilities generated by major infrastructure interventions. His teams often include architects and engineers who question and evaluate design solutions, but they may also include experts in communications, business, education, urban planning, sustainability, systems analysis, and social anthropology.

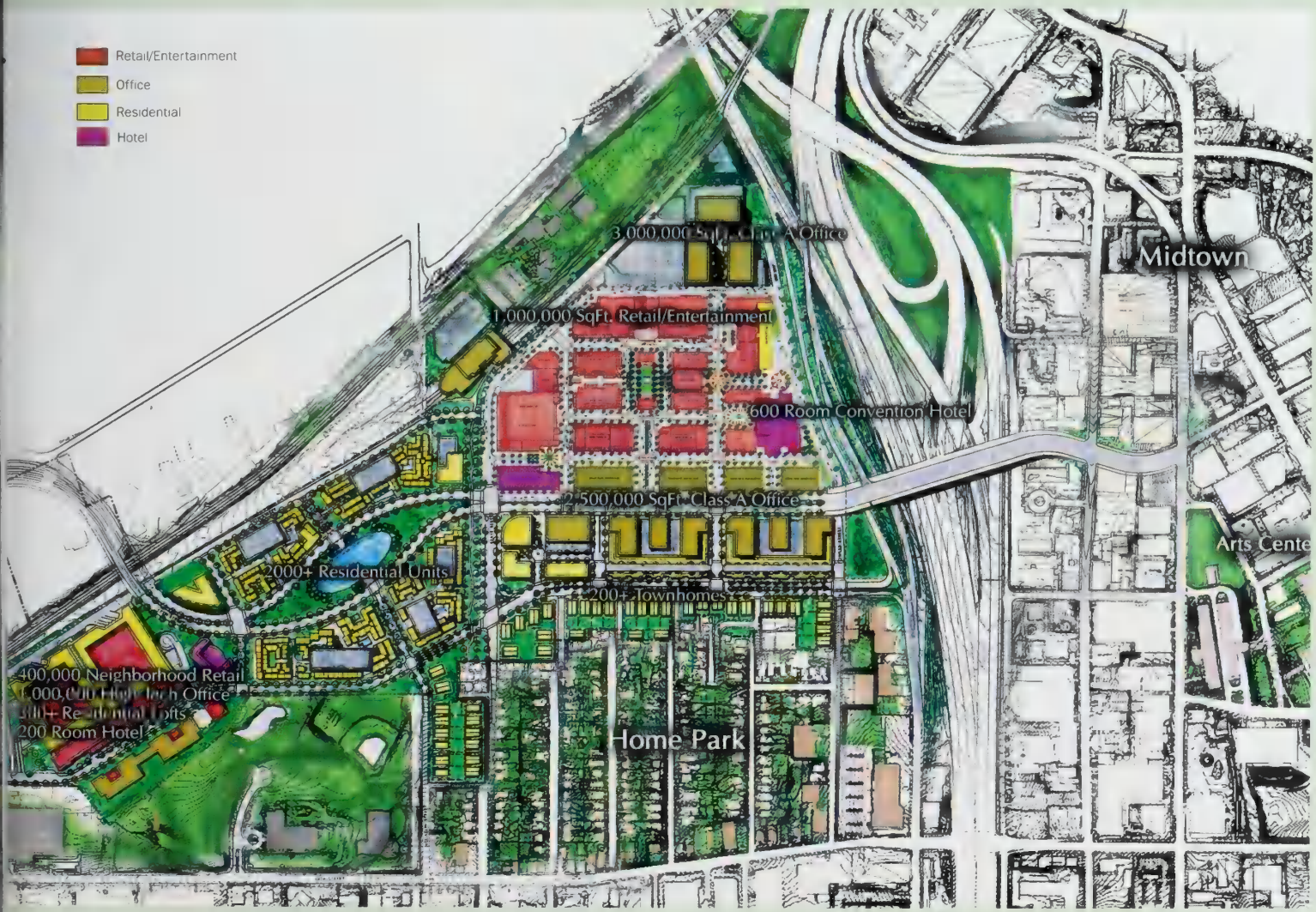
Getting off the grid

Alternative ideas about the production, ownership, and use of energy are at the heart of imaginative infrastructure solutions. Increasingly, problem solving inspires innovation. When developers Jacoby Development and AIG contemplated the redevelopment of the defunct Atlantic Steel Yard in the heart of Atlanta, they first had to convince the Environmental Protection Agency (EPA) that their proposed mixed-used scheme, to be called Atlantic Station, would not exacerbate Atlanta's existing violations of the Federal Clean Air Act. The violations had resulted in a moratorium on new roads that require federal approval, and the proposed development needed a roadway connecting it to the rest of the city.

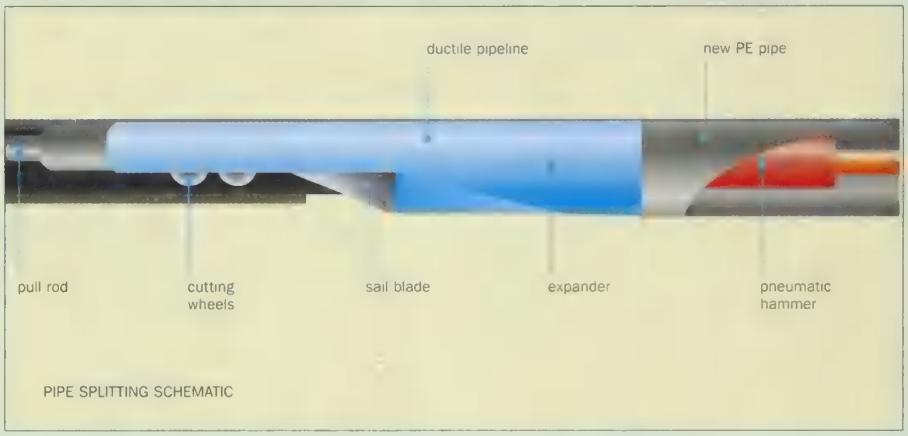


Atlantic Station
Atlanta, Georgia

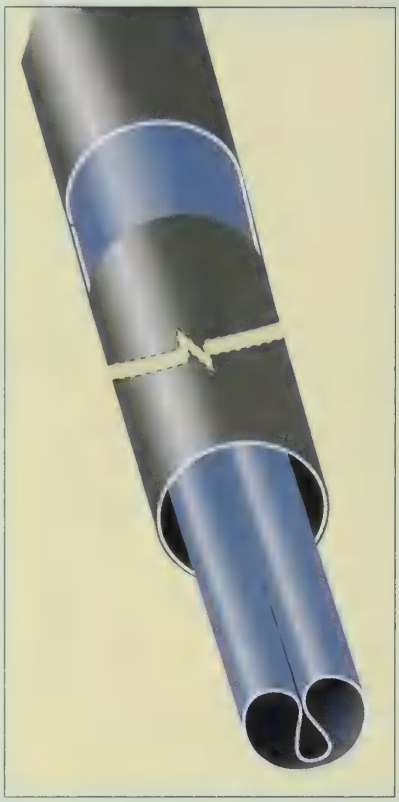
The developers of this 150-acre, mixed-use project picked a brownfield site (below) to prove that conscientious development could actually reverse some of the ills brought about in the past by unchecked sprawl. This included creating a multipurpose—pedestrian, auto, bicycle—bridge (left) to take commuters to a rapid-transit station. Their plans also provide a new storm-water culvert and upgraded sewer system.







PIPE SPLITTING SCHEMATIC



Repairing the existing infrastructure, New York City
Pipe splitting (above and top) is a repair technique that splits old pipes using inexpensive and replaceable cutting wheels and then pulls new polyethylene (PE) pipes into the resulting space. In tight-fitting eases, a PE pipe is folded into a C shape (right) and banded to hold the new form, then returned to its original shape after insertion into a lubricated cast-iron main. This reduces the amount of time and expense it takes to repair a damaged section.

The developers of Atlantic Station, which is isolated from midtown Atlanta by a pair of expressways, solved its potential air-quality problems and set the stage for a pedestrian-friendly development with a multimodal—pedestrian, bicycle, auto—bridge over the expressway and a shuttle bus to the rapid-transit station. When a private entity provides infrastructure for new development, it's an acknowledgment that the new construction is part of a larger environmental and infrastructure framework that both affects and is affected by the existing system.

In considering transforming the 150-acre brownfield site into a mixed-use development, Jacoby and AIG intended to demonstrate their strong environmental commitment. Before any building could occur, however, the overloaded storm and sewage system had to be upgraded. When the cash-strapped local government was unable to upgrade within the developers' timetable, the developers made the upgrades themselves. With precast, 36-inch concrete sections, they built a new storm-water culvert and upgraded sanitary sewer to serve the new development and the surrounding residential neighborhood, the first such independent system in Atlanta.

Decentralization—moving off the grid—was perhaps the most impressive innovation. At Atlantic Station, the developers brought in John Picard, a renowned environmental consultant from southern California who has worked all over the world. Along with Southern Company Energy Solutions, a sibling of Georgia Power, the local utility, they set out to make Atlantic Station energy-efficient, self-sufficient, and cost-effective. Southern Company Energy Solutions contracted with the developer to provide air-conditioning and electrical power to the area's entire 8 million square feet of commercial space and 3,000–4,000 residential units.

Power for cooling and electricity is brought to the site through one meter, which gives the company cheaper industrial-market purchasing power. They will build a central cooling plant for the entire complex with a cold-water pipe ringing the site into which individual developments will tap.

DECENTRALIZATION—MOVING OFF THE GRID—WAS PERHAPS THE MOST IMPRESSIVE INNOVATION.

As an investor and operator, Southern will buy a chiller with the lowest life-cycle costs—that is, one with the highest quality and most energy-efficiency that will have far lower energy consumption than the aggregate of individual units. Small electrical turbines and a 300-kilowatt fuel cell are planned to supplement the power supply and ensure self-sufficiency.

The developer saves the cost of multiple mechanical spaces and package systems. The tenants get the reduced cost of energy that a single purchasing entity can provide. Southern, as the designer, owner, and operator of the system, has a guaranteed and predictable market for its major investment. Comparable in concept to district steam plants, it's a new gen-

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Infrastructure is valuable real estate, too

The events of September 11 brought many kinds of destruction to Lower Manhattan, the most tragic being the loss of human life. While rescue and recovery were the top priorities, the disruption of services—transportation, power, telecommunications, water—at the site rippled out to affect the entire Metropolitan area, both directly and indirectly, and suddenly everyone became aware of something called "infrastructure." One of the first groups formed to assess and mitigate damage at the World Trade Center site was the New York City Infrastructure Task Force.

Rethinking the infrastructure, especially in urban areas, means recognizing its value as real estate. The functions that take place in the underground are just as vital to the urban quality of life as those above, and, as Ray Sterling, director of the Trenchless Technology Center at Louisiana Tech University, in Ruston, Louisiana, says, they "demand the same consideration in planning as the surface." Michael Fishman, vice president of urban design at the Sam Schwartz Company, in New York City, argues that we can now rethink the connections that users of the underground have to their destinations above ground, to keep the link between them visible. In Lower Manhattan, easy access to the underground for daily users can be built in as the system is rebuilt, and so, too, can access points—whole rooms, if necessary—to the myriad utilities that converge in the area. As Fishman describes it, "Grade is no longer thought of as a plane relative to which things are only above or below. It can be seen as a volume containing levels that connect transit and street network, accommodate daylight and land use, and connect people to the places they want to occupy."

Even more than rethinking the underground, since the September 11 attacks and the threat of bioterrorism that followed, there has been a flurry of concern over how to secure infrastructure systems. According to Richard Little, director of the Washington, D.C.–based Board on Infrastructure and the Constructed Environment (BICE), who has been working on this issue a long time, there are several levels of protection, and decisions about what is possible and cost-effective need to be made in a number of arenas. At the level of an individual building, there are state-of-the-art blast-protection measures that can be employed, but the relative need and the relative cost must be balanced. Other methods of detection—cameras and sensors—are relatively accessible, but, again, relative risk will justify additional costs.

The larger issue is the interdependence of infrastructure systems and their controls. For example, utility services may be controlled by a wireless or hard-wired system, which is operated by a telecommunications company. Loss of utility service may be because of an outage suffered by the telecommunications company, not the utility. The interdependence of systems—human and physical—has been revealed again and again since 9/11. *B.K.*

eration of motivations and responsibilities, as set out and defined by the Full Service Agreement between the developer and the energy company.

Everyone gets a system that is cheaper and more predictable than the grid. The distribution system is the cause of 95 percent of power outages in the U.S., costing the economy close to $30 billion annually. Ultrasensitive computer systems and costly dependence on them will continue to make distributed generation (small-scale power-generation technologies) that creates power close to the users—and even smaller micropower systems, such as fuel cells—attractive alternatives or supplements to the power grid for residential applications.

What to do with aging systems

According to Ray Sterling, there are 3.5 million miles of underground utilities—gas, electric, water, sewer, and telecommunications lines—in the U.S. municipal infrastructure, and they are often decades old; some of them even date back to the early 20th century, and very little undergoes regular maintenance and repair. For years, engineers have warned that much of our underground infrastructure is near the end of its design life, and, although it does perform nearly all of the time, sometimes there are spectacular failures, from water-main breaks to bridge collapses.

How we deliver infrastructure systems to buildings has to change. "An individual building is part of an area of a city, and the ability of that part of the city to grow will depend on the utility and transportation infrastructure," Sterling reiterated. "If you want to have a building or an area of a city that is vibrant, with adequate services and transportation and a nice surface environment, then you have to think about how you plan the space and services below ground to support it. For example, the more you disrupt the street to repair, replace, and upgrade the support underneath, the more you will disrupt the surface transit patterns and the quality of the roadway. Pretty soon, a road with a design life of 50 years is so torn up, it has to be replaced after only 15 years."

"Invisible construction," a term coined by the Fort Miller Company, a precast-concrete-construction company in upstate New York, has proven that prefab technologies can make major infrastructure replacement painless for the public—better, faster, and cheaper. The concept is simple: Prefabricate the parts in a controlled environment (better), install them overnight (faster), and you will finish the job in less overall time (cheaper). Fort Miller has used this technique for major roadway and bridge construction, where it would be impossible to shut down for weeks at a time. Says Michael Fishman, vice president of urban design at the Sam Schwartz Company, in New York City, "Invisible construction techniques have the ability to minimize gridlock, noise, duration, closures, and other headaches typically associated with road construction."

With the development of "trenchless" technologies—really a kind of invisible construction—in the past 30 years, it is possible to install, maintain, and inspect underground utilities with limited or no excavation. The technology has advanced significantly in recent years, and proponents expect increasing failures to raise demand for this method to

FOR YEARS, ENGINEERS HAVE WARNED THAT MUCH OF OUR INFRASTRUCTURE IS NEAR THE END OF ITS DESIGN LIFE.

inspect, rehabilitate, and replace pipes. Yet, in spite of the need for more investment in our infrastructure, the truth is our knowledge is limited by lousy data and virtually no inspection systems. "We may have state-of-the-art building systems, but they are often connected to a 19th-century distribution system about which we have little capability to predict what [part of it] will fail," said Richard Little, director of the Washington, D.C.–based Board on Infrastructure and the Constructed Environment (BICE), a division of the National Research Council. "There are no benchmarks, we have so few tools to use what little data we do have, and no comparisons of what companies are doing well with their maintenance." One solution to these problem are the new, better inspection devices, such as small cameras, that can motor through underground pipes. The technology has improved so that these cameras are able to send



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back crystal-clear color images that show cracks and rats equally well. There are even cameras that can go down a main sewer line and launch a satellite to travel up a branch line to a building. If a system is planned initially with inspection and clean-out ports at strategic points, such as property and building lines, cleaning and maintenance—as well as anticipating and assigning responsibility for problems—becomes a snap.

Old, rough, and failing pipes can be renewed with slip linings called cured-in-place pipe (CIPP) that, as Sterling describes it, "are unfurled like a resin-impregnated sock that you turn inside out within the pipe and then cure with heat so that you create a new thermoset pipe inside the old one." Although it reduces the diameter of the pipe some, the reduced friction often means that flow can be maintained at the level it was prior to the procedure. There are variations on the method called Fold and Form or Deform/Reform, the choice depending on the type of pipe, but all have the potential to make the pipe as good as new—or at least extend its life significantly.

THERE ARE GOING TO BE MORE RECYCLING CENTERS AND BROWNFIELD DEVELOPMENTS IN OUR FUTURE, NOT FEWER.

When a pipe is under capacity or too deteriorated for relining, pipe-bursting and -splitting methods that break up the old pipe and pull a new one in at the same time can be used to replace both brittle and ductile pipes. Excavations need to be made to initiate the work, and at points where new connections are made, but the runs can be done with no excavations. For new installations, directional drilling and microtunneling can drill and tunnel precisely into the ground. The equipment is so easily manipulated that it is possible to steer it to angle under objects such as rivers and freeways. Directional drilling was used extensively in fiber-optic installation, but it has the capability of drilling for diameters as small as 3 inches and as large as 54 inches over distances from a few feet to a mile underground.

Impact moling is less precise and has a capacity for runs in the range of 30 to 50 feet. A pneumatic device hammers through the ground displacing the soil and creating a hole for cable or pipe. Unlike the steered drilling and tunneling methods, the device is aligned and then simply let go to do its work, ending up in a pit at the end of the run. Because it is a small piece of equipment, easy to set up and less expensive to operate, it is often used for building connections such as gas or water pipes.

There are going to be more recycling centers, waste-management plants, and brownfield developments in our future, not fewer. Although as a group they constitute a legitimate building type, they've attracted as much design interest as suburban strip malls. The reality, however, is that both the decentralization of power and the increasing need for better public works will demand that the architectural profession be prepared to deliver imaginative and innovative solutions. It's time to start looking in manholes and over chain-link fences. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Urban Infrastructure: The 'Out of Sight, Out of Mind' Mentality is an Outmoded Concept" using the learning objectives provided.
- Complete the questions below, then fill in your answers (page 238).
- Fill out and submit the AIA/CES education reporting form (page 238) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. What is the cause of 95 percent of power outages in the U.S.?
- **a.** power plants
- **b.** dependence on oil
- **c.** the distribution system
- **d.** heat from solar gain

2. How many underground utility lines are in the U.S.?
- **a.** 1 million miles
- **b.** 3.5 million miles
- **c.** 45 million miles
- **d.** 200 million miles

3. Invisible construction makes use of all except which method?
- **a.** prefab technology
- **b.** trenchless technology
- **c.** overnight installation
- **d.** robotic installation

4. What needs to be done to the infrastructure systems?
- **a.** ignore them and concentrate on new buildings
- **b.** cap them off and build new infrastructure
- **c.** inspect them with small cameras that can travel through them
- **d.** replace all the old systems

5. Which is not true of cured-in-place pipe?
- **a.** it reduces the diameter of the pipe
- **b.** it extends the life of the pipe
- **c.** it reduces the friction of water in the pipe
- **d.** it reduces the flow of water in the pipe

6. Which method was used for fiber-optic installation?
- **a.** directional drilling
- **b.** microtunneling
- **c.** impact moling
- **d.** pneumatic hammering

7. Which method is less precise, but often used for building connections such as gas or water?
- **a.** microtunneling
- **b.** directional drilling
- **c.** impact moling
- **d.** splitting

8. "Grade" is no longer thought of as which?
- **a.** levels that connect transit and street networks
- **b.** a plane relative to which things are above or below
- **c.** a connection for people to the places they want to occupy
- **d.** a way to accommodate daylight and land use

9. Rethinking the infrastructure in urban areas means which?
- **a.** recognizing it as valuable real estate
- **b.** giving it the same consideration in planning as the surface
- **c.** considering the connections that users of the underground have to their destination on the surface
- **d.** all of the above

10. Infrastructure includes all except which of the following?
- **a.** trains, planes, and automobiles
- **b.** roads, streets, and transit systems
- **c.** wires, lines, and pipes that run into fixtures in the walls
- **d.** switches and controls that keep systems and networks up and running





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VISTAWALL PRESENTS

Daylighting:

Many Designers are Still in the Dark

Rice School Library – A geodesic, half decagon-shaped translucent skylight, measuring 53 feet in diameter, brings natural daylight into Rice Elementary School in Houston, TX.

Architecture based on designs that, in varying and ingenious ways, capture natural light are among the most elegant and inspiring creations we encounter. Daylighting, the term that has become synonymous with the use of natural light in buildings, spawned a flurry of design literature beginning in the 1980s and continues to be one of the most widely researched topics in construction.

New glazing materials, new curtain wall systems and skylight technology and new understanding of their interplay has opened the door to wondrous new design opportunities. Not as widely understood is the notion that daylighting has become an essential energy-saving tool.

Effective daylighting design introduces natural light while balancing the elements of artificial lighting, solar heat gain, heat loss through glazing, and internal sources of heat gain. It attempts to maximize diffused light throughout the building interior, minimize direct sunlight and control heat gain. To be most effective, daylighting must be integrated with electric lighting, lighting controls, heating, cooling, and ventilation systems and occupant movement patterns. Success will provide a comfortable and energy-efficient building.

Daylighting, which curtain wall contractors say is still frequently perceived as "energy wasting," has, perhaps surprisingly—since glazing has always been considered the least effective insulating element of a building—become an essential component of energy conservation programs across the country.

In California, which leads the nation in energy-efficient building construction—in the three years from 1999 to 2001, according to the Public Utilities Commission—energy efficiency programs, many of which are devoted to daylighting, saved 2.3 billion kWh of electricity, an amount sufficient to serve 362,000 homes—half the population of Delaware.

Skylighting offers potentially large energy savings—the average grocery store may save $16,000 (or 32 cents per sq ft) in energy costs through daylighting; schools, typically $7,500 (23 cents per sq ft) per year, industrial buildings up to 12 cents per sq ft, says Energy Design Resources, a consultancy funded by California utility customers and administered by Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison, under the auspices of the California Public Utilities Commission.

Southern California Edison provides no-cost engineering and HVAC system improvement recommendations to owners of buildings in excess of 100,000 sq ft as part of its California Building Energy Initiative. PGE, as part of a now four-year-old Daylighting Initiative, conducts nearly 100 architectural workshops every year to get this message to designers: Daylighting saves energy.

The most common misconception among architects is that contemporary glazing is the answer to all our problems, says PGE Glass Class instructor George Loisos, AIA, Loisos + Ubbelohde Associates, Oakland, Calif. "The truth is, although glazing can help a lot, no glazing system is a substitute for good design."

In Davenport, Iowa, through its Commercial New Construction Program begun in 1999, MidAmerican Energy, the state's largest utility, offers consultation computer analysis and economic incentives of up to 14 cents per kWh (to developers of buildings

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **Daylighting: Many Designers are Still in the Dark.** To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 165, then follow the reporting instructions on page 242 or use the Continuing Education reporting form located at *architecturalrecord.com.*

Learning Objectives

- Understand the impact of daylighting on human productivity, performance, and energy payback
- Correctly specify various glazing systems and methods
- Apply principles of daylighting to designs

over 50,000 sq ft) for qualifying building designs. The program, to date, has resulted in average energy savings in excess of 30 percent in some 40 projects involving both new and rehabilitated buildings, MidAmerican says.

The Weidt Group, Minnetonka, Minn., MidAmerican's partner in the commercial conservation program, works with design teams to calculate relative energy impacts and costs associated with a range of design options. The program runs parallel with the design process, and promises not to delay the construction schedule, says Weidt Group principal David Ejadi.

The Weidt Group has conducted daylighting analysis of over 250 buildings. "We can now demonstrate 30-40 percent energy savings with a one-to-two-year payback and buildings that exceed code requirements," Ejadi says.

"When you take the time to do a comparative analysis of fenestration, building location, shading, glazing types and show the dollar implication and performance characteristics, and show clients the results, clients will make different decisions with regard to daylighting," says Ejadi.

There is no single "silver bullet" that will achieve a good daylighting solution, he insists. "This is a business that depends on collaboration."

Successful daylighting begins with building orientation and ends with proper daylighting controls, the correct combination of lighting, ballasts and sensors. But interior design is critical, Ejadi insists. "If interior design is poor, you end up subverting the daylighting system—space planning is important."

"There are somewhere between six and 10 key elements of a successful daylighting system. If you fail to do any of them perfectly, you fail to achieve the systemic effect of daylighting. If you do four things 90 percent right, mathematically you end up with a solution that is about 60 percent as good as it could have been. The reason why many daylighting systems fail is because many architects and engineers don't understand the interactive effects of the many elements that go into a daylighting system."

Selling daylighting isn't difficult, Ejadi insists. "You build consent through a series of small 'yeses'. You ask the client: Do you want a good building? Do you want your employees to be happy and productive? Do you want to save money?"



North Shore Senior Center, Northfield,IL: Skylights were added to North Shore Senior Center during recent renovation. The skylight system was installed directly over existing roof structure.



Fixed and movable features such as vertical blinds shown above can block and reflect direct sunlight entering through windows.

"Once you demonstrate that daylighting makes all those things happen, clients are much more willing to sit down and listen to what you have to say."

Artificial lighting accounts for as much as 40-50 percent of the energy consumption in most commercial and institutional buildings, and 10-20 percent of energy consumption in industry, says the U.S. Department of Energy. Daylighting can significantly reduce those costs, says the DOE.

Daylighting, once confined to museums, boutiques and architectural oddities, is, today, an increasingly integral element of contemporary design. Daylighting, as part of an integrated design, results in energy savings and increased performance by building occupants.

Despite the potential benefits of daylighting, only a tiny fraction is captured in buildings today.

"Many architects are knowledgeable about the benefits of daylighting,design, but many are still in the dark (pun intended)," says Jeff Rutledge, head of the skylight division of a major U.S. curtain wall and skylight system manufacturer and installer.

Daylighting and the impact of daylighting strategies on the lighting, heating and cooling of buildings is, perhaps, the most intriguing, and the most vital, construction issue facing building owners and design professionals.

Daylighting and Productivity

Ongoing research into daylighting as a source of energy conservation is voluminous. The subject of daylighting became common currency, however, when the Heschong Mahone Group's now three-year-old study on daylighting and productivity caused such a cultural stir that results were reported by 50 newspapers. Author Lisa Heschong was surprised to find herself on National Public Radio and the CBS News.

The two-pronged Heschong-Mahone study concluded, in short, that daylighting, the effective combination of exterior glazing, skylights and control systems, greatly improved student performance in schools and boosted retail sales.

The report studied the correlation between daylight availability and human productivity. The study was done in two parts. One looked at the test scores of 20,000 elementary students in three school districts and concluded that daylight in classrooms resulted in a more than 20 percent improvement in test scores. A second part of the study looked at retail sales. Its conclusions: sales were as much as 40 percent higher in stores with skylighting.

In June 1993, Wal-Mart opened a new store in Lawrence, Kan., that became the prototype for a majority of the new Wal-Mart stores that followed—all of them daylighted.

A foray into sustainable architecture, designed by Tulsa-based BSW Architects, in



Chicago Police Headquarters, Chicago, IL
To make the most efficient use of glazing systems, designers of Chicago Police Headquarters added a shading device, which is supported by the curtain wall system.

consultation with William McDonough Architects, the Center for Resource Management and the Rocky Mountain Institute and The Weidt Group, the Lawrence store was designed for energy efficiency. It had a glass arch at the entrance for daylighting, an efficient lighting system, an HVAC system that utilized ice-storage and special light-monitoring skylights developed specifically for the project.

As a cost-cutting measure, Wal-Mart decided to install skylights on only half the roof, leaving the other half without daylighting. Because each of Wal-Mart's cash registers is connected in real time headquarters in Bentonville Ark., it was soon apparent, says Tom Seay, vice president of real estate, that "sales pressure was significantly higher for those departments located in the daylit half of the store." Sales also were higher than for the same departments in other stores.

"We are daylighting the large majority of our projects now," says Bill Correll, Wal-Mart director of architecture.

Often, as the Heschong-Mahone study notes, daylighting may not even be apparent to those in the building. Interviews with shoppers done as part of the firm's 1999 survey asked the question: "What do you think of the skylights in this building?"

"The typical response was to look up, look puzzled, and then say, 'That's funny, I never noticed them before.'" Out of 42 interviews in 10 skylit stores, Heschong says, only three shoppers were aware of the skylights.

"The questioner then asked: 'Does this store feel any different to you than other stores like this?' By far the most common response (80 percent) was 'This store feels cleaner.' The second most common response (65 percent): It feels more spacious, more open.'"

Daylighting Design Strategy

Because daylight produces less heat per unit of illumination than many artificial lights, daylighting may reduce cooling costs when it replaces artificial lighting. As part of a passive solar heating system, sunlight can also provide supplementary building heat. If improperly designed, however, glazed areas that allow daylight into a building also contribute to heat loss in the winter and undesirable heat gain in the summer, leading to heating and cooling costs that can offset savings from reduced lighting costs. Daylighting designs must be carefully analyzed to ensure that they reduce artificial lighting needs without increasing cooling or heating requirements.

The analysis must take into account a building's orientation with respect to the sun, the path of the sun at various times of the year. It involves some understanding of how a given glazing system transmits visible light:

Visual transmittance (TV) is a measure of the portion of visible light that passes through a window. Glazing systems with high TV values (0.7 to 0.9) provide good natural light.

Solar heat gain coefficient (SHGC) and shading coefficient (SC) are measures of a glazing system's net solar gain. Systems with high SHGCs (0.7 to 0.9) provide significant solar gain; those with values in the 0.2 to 0.4 range provide little solar gain. To reduce heating in northern climates, select the highest SHGC you can find so that winter solar gains can offset heating needs. In central climates, with significant air conditioning costs or summer overheating problems, look for SHGC values of 0.40 or less. A low SHGC is the most important window property in warm climates.

The *light-to-solar gain ratio* is TV divided by SHGC, and is an index of how much light a system provides in proportion to the solar gain produced. Systems with an LSG ratio greater than 1 provide more heat than light.

U-value expresses how much energy a glazing system transfers by conduction and convection. In general, select windows with U-values of 0.40 or less.

R-value is the insulating value of a material. Single-glazed windows have R-values of 1; double glazed panels, about 2. In laboratory tests, researchers are creating window systems with R-values of between 6 and 10. These are multiple-pane systems with two low-e coatings and interior air spaces filled with an inert gas, like argon, that conducts heat less than air.

In some climates, U-value should take precedence over the Solar Heat Gain Coefficient when selecting a glazing infill. It costs more to air-condition a space than it does to heat it. In warm climates you should choose an infill based on its SHGC. The lower the coefficient the less heat allowed by the infill. In cold climates you should choose an infill with a low U-value. A low U-value will slow the loss of air you've paid to heat by slowing heat transfer through the material.

It is important that designers consider vision glazings and daylighting glazings differently because they perform very different functions. Vision glazings typically use lower transmittances to provide comfortable views to the outside. Daylight glazings, because they are used to provide interior illumination, generally have a much higher visible transmittance than vision glazings. As a general rule, select a vision glass with a visible transmittance between 20 and 30 percent, and a daylighting glass with a visible transmittance of 50 to 60 percent.

Glazing may be clear, tinted, coated or filmed. Windows may be single-or multiple paned, and multiple-paned systems can be vacuum-sealed or filled with either of several inert gases. Glazing materials that selectively control the spectral aspect of solar radiation are now commonplace, and additional energy savings can be obtained by controlling the spectral characteristics of glazing with the new materials.

Low-emissivity coatings suppress infrared radiation, resulting in additional thermal insulation. Modified low-e coatings can reject unwanted heat gain due to solar infrared. In cold climates, low-e glazings have the effect of keeping warmth in the building during winter. A typical pane of single glass has a U-value of about 1.0 BTU/hr-sq ft; a typical low-e glass a U-value of about 0.63.

To optimize the response of glazing systems to unwanted radiation, researchers at the Berkeley National Laboratory, and elsewhere, are experimenting with "electrochromic" materials, whose optical properties change with the injection of light ions. A number of other options—photochromics, reflective hydrides, liquid crystals, thermotropics and suspended particle displays—all of which have peculiar characteristics that change in response to varying heat or light, are being studied to achieve the same result. The application of electrochromic technology is still limited, but may play an important role in glazing design in the not-too-distant future.

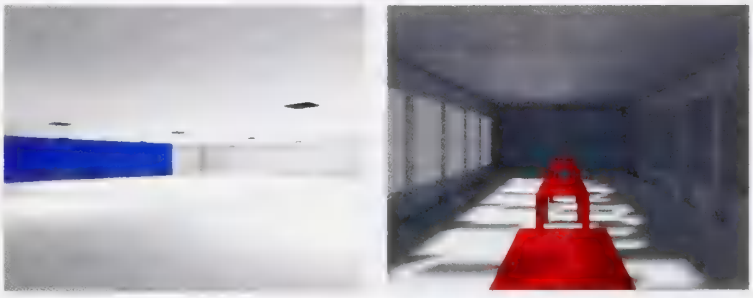
Practical Daylighting

Use of large glazed openings does not guarantee good daylighting. One of the biggest challenges of daylighting is to provide illumination in areas where it is most needed, for instance on northern exposures, and on ground levels of buildings. There are several devices and architectural design techniques that achieve a desired quality and quantity of daylight. The devices serve three general functions: to redistribute sunlight

by diffusion or reflection, to eliminate excessive illumination on interior surfaces, and to eliminate glare and direct radiation.

Daylighting falls into two general categories: sidelighting and toplighting.

For buildings with long, shallow floor geometries, it is feasible to daylight up to 70 percent of the footprint with a sidelighting system relying on ceiling-height glazing in perimeter walls. Effective daylighting requires a ceiling height of at least nine feet, and ceilings of 10 feet, or higher, are recommended.



Tubular skylights collect and transmit natural light to areas difficult to light, such as buildings, with drop ceilings, lower floors of multi-floor buildings, museums and laboratories.

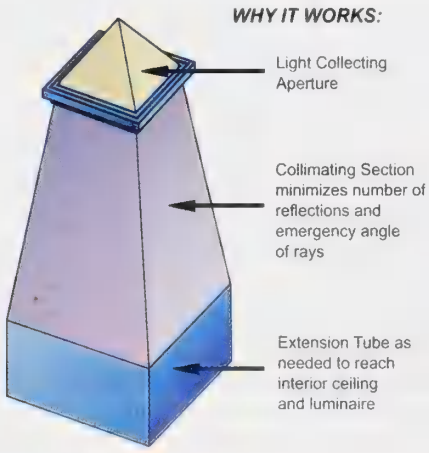
Toplighting—through roof monitors, clerestories, skylights, sawtooth elements and atria—provides natural light through rooftop openings and their orientation is not dependent upon the building orientation. Clerestories use rooftop glazings that run parallel to vision glazing on perimeter walls. Sawtooth components incorporate a series of vertical or sloped glazed elements separated by sloped roof elements.

A technique known as reflected (or beam) daylighting, redirects daylight from one portion of a building to another. One method is to mount reflective blinds in the upper two feet of a vertical window. Another is to install reflective shelves at the base, inside or outside, of a window. Exterior window overhangs with downward-facing reflective surfaces also transmit light reflected from the ground or other structures into interior spaces. This reflected daylight does not cause glare or overheating.

Various exterior features limit excess direct or diffuse sunlight. Overhangs projecting from a building's roof or exterior wall can shade windows. The depth of the overhang can be designed to block direct sunlight and to reduce heat gain in the summer, but still allow direct sunlight into a building to provide heat in the winter. Overhangs may be solid or opaque, and use flat or sloped designs. Fixed and movable exterior baffles or louvers running horizontally or vertically across windows can be used to reflect and diffuse sunlight. "Shading is the critical element in this equation," says Loisos.

Fixed and movable interior features such as drapes, blinds, louvers, and baffles, can block and reflect direct sunlight entering through windows. Reflective baffles, located inside roof monitors or along the ceiling plane, redirect or diffuse sunlight entering through a monitor. Louvers may be necessary to control skylight glare and solar heat gain.

Tubular skylights consist of angular tubes that direct and transmit light to areas where it is needed. The tubes contain reflective surfaces that direct daylight entering the tube down or horizontally into building interiors. Tubular skylights can provide high quality light with little heat or glare. They are useful in areas that are difficult to light, and in buildings that have special lighting requirements, such as laboratories and museums. They can also provide "skylights" for the lower floors of multi-floor homes or buildings.



Integration is Critical

The presence of daylight influences design of electric lighting and control systems. In the daylit zones, controls are necessary to maximize energy savings.

At the 47,000-sq-ft Dena Boer Elementary School in Salida, Calif., a Kenneth K. Kaestner & Associates (Modesto, Calif.) design incorporates deep overhangs at vertical windows and triple-glazed prismatic, spectrally selected acrylic skylights. Prisms refract light throughout classrooms, offices, multi-purpose rooms and the school library. Daylight alone is capable of providing 100 percent of the school's lighting needs (at up to 250 foot-candles) for much of the year.

The spectrally selective glazing allows visible light into the school interior while rejecting most ultra-violet and long-wave radiation that produces heat, but no light.

Electric louvers control the amount of light from the skylights, but other daylight controls are absent. The addition of dimmable electronic ballasts and a photocell-based control system offer the potential for up to $9,000 (1.85 kWh/sq ft-yr) in additional energy savings annually, says Kaestner.

At the Gymboree Corporation's 270,000-sq-ft distribution center in Dixon, Calif., 360 4 ft X 8 ft prismatic skylights, are controlled by photosensors that send signals to controllers to dim or turn off electric lights. Occupancy sensors in about 60 percent of the building and bi-level controlled high-intensity discharge luminaires contribute to annual energy savings of about $28,000, 1.2 kWh/sq ft-yr.

Cost Effectiveness of Daylighting

To be cost-effective, the savings on lighting and cooling must offset the costs of buying, installing, and operating daylighting features in a reasonable amount of time. Typically, and depending upon the percentage of the total construction budget devoted to daylighting, the payback period is from two to five years, say industry sources.

The amount of energy savings depends on climate, location, energy load, and design of the building. Gains or losses in worker productivity are more difficult to quantify.

Perhaps, surprisingly, says Loisos, daylighting can reduce overall construction costs—through dramatic reductions of mechanical system costs. Loisos says an unsuccessful entry (by Barcelona-based Benedetta Tagliabue) in the competition for the $170-million California Department of Transportation's downtown Los Angeles headquarters (now in design by L.A.-based Thomas Mayne) would have done just that. The system designed by Loisos and Tagliabue incorporated the latest iteration of prismatic, light-redirecting glazing to overcome the common problem of glare resulting from direct sunlight in working areas. "It was the most sophisticated façade we ever designed," Loisos says.

The use of direct, diffuse, or reflected sunlight to provide full or supplemental lighting combined with energy-efficient lighting and electronic ballasts, has the potential to reduce the lighting power density, often the measurement of lighting efficiency, in office buildings from 2.2 W/sq ft to 0.88 W/sq ft, according to a 2001 study by the Paris-based International Energy Agency (IEA). (To measure lighting power density, add all of the potential power requirements for lighting in the building and divide that sum by the total usable floor area of the building.) The agency, which partnered with California's Lawrence Berkeley National Laboratory to show the potential of new daylighting technologies, says that while the correlation between daylighting and energy savings is clear, "robust models for integrated evaluation of daylighting concepts are not yet available."

The Weidt Group estimates its design of a high-performance glazing system with daylighting controls at the Skokie, Ill. Pharmacia Laboratory Building, resulted in a 38 percent annual saving in energy and operating costs. Daylighting installations at Pharmacia, utilizing high-efficiency lighting designs with controls and high-efficiency chillers, motors and heat recovery, also resulted in abatement of 16 million pounds of air pollution per year.

"Successful daylighting design requires complex tradeoffs," says the chairman of the IEA Task 31 (daylighting) subcommittee. "Optimization can be particularly difficult because there are numerous physical parameters to consider as well as a number of performance objectives and complex time-dependent issues."

Click for Additional Required Reading

As part of this learning activity, you are required to read the following additional material: "Analyzing Daylighting Designs," "Daylighting in Schools," and "Skylighting and Retail Sales." They will provide you with information on software available to analyze your designs and further details on the Heschong-Mahone Group's study. To access the materials, go online to *architecturalrecord.com*. To receive a faxed copy of the material, contact Sharon Harper, Marketing Department, 800-869-4567 ext. 130 or email SLHARPER@vistawall.com.

Learning Objectives

- Understand the impact of daylighting on human productivity, performance, and energy payback
- Correctly specify various glazing systems and methods
- Apply principles of daylighting to designs

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 242. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. According to Energy Design Resources, skylighting as a method of daylighting design can save a typical school how much per year in energy savings:
A: a. $40,000 (54 cents per sq ft)
b. $16,000 (32 cents per sq ft)
c. $7,500 (23 cents per sq ft)
d. $1,750 (8 cents per sq ft)

Q: 2. Daylighting can significantly reduce the costs of energy consumption of artificial lighting which, according to the U.S. Department of Energy, accounts for as much as how much in most commercial and institutional buildings:
A: a. 10% to 20%
b. 25% to 35%
c. 40% to 50%
d. 50% to 75%

Q: 3. Daylight produces less heat per unit of illumination than many artificial lights.
A: a. true
b. false

Q: 4. Match the term with the definition.
A: a. Visual transmittance (TV)
b. Light-to-solar gain ratio (TV divided by SHGC)
c. U-value
d. R-value

1. Insulating value of a material .
2. Index of how much light a system provides in proportion to the solar gain produced.
3. Measure of the portion of visible light that passes through a window.
4. Expresses how much energy a glazing system transfers by conduction and convection.

Q: 5. Glazing systems with high visual transmittance (TV) values (0.7 to 0.9) provide good natural light.
A: a. true
b. false

Q: 6. Which systems provide more significant solar gains? Those with high (0.7 to 0.9) solar heat gain coefficient (SHGCs) or those with low values (0.2 to 0.4 range)?
A: a: high
b. low

Q: 7. A system with a light-to-solar gain ratio (visual transmittance value divided by the solar heat gain coefficient) greater than 1 is providing which:
A: a. more heat than light
b. more light than heat
c. equal amounts of heat and light

Q: 8. Designers can consider vision glazings and daylight glazings comparably because they perform similar functions.
A: a. true
b. false

Q: 9. Fill in the blanks: As a general rule, select a vision glass with a visible transmittance value between _____ percent and a daylighting glass with a visible transmittance value of _____ percent.
A: a. 10-20 (vision) and 60-70 (daylighting)
b. 20-30 (vision) and 50-60 (daylighting)
c. 50-60 (vision) and 20-30 (daylighting)
d. 60-70 (vision) and 10-20 (daylighting)

Q: 10. Which suppresses infrared radiation, resulting in additional thermal insulation?
A: a. roof monitors
b. reflective baffles
c. multiple-paned systems
d. low-emissivity coatings

Q: 11. To redirect daylighting, all but which of the following are effective:
A: a. mount reflective blinds in the upper two feet of a vertical window
b. install reflective shelves at the base of a window
c. specify high performance coatings for glass infill
d. add exterior window overhangs with downward-facing reflective surfaces

Q: 12. Typically, and depending upon the percentage of the total construction budget devoted to daylighting, industry sources estimate the payback period is from _____.
A: a. building completion to two years
b. one to two years
c. two to five years
d. five to ten years

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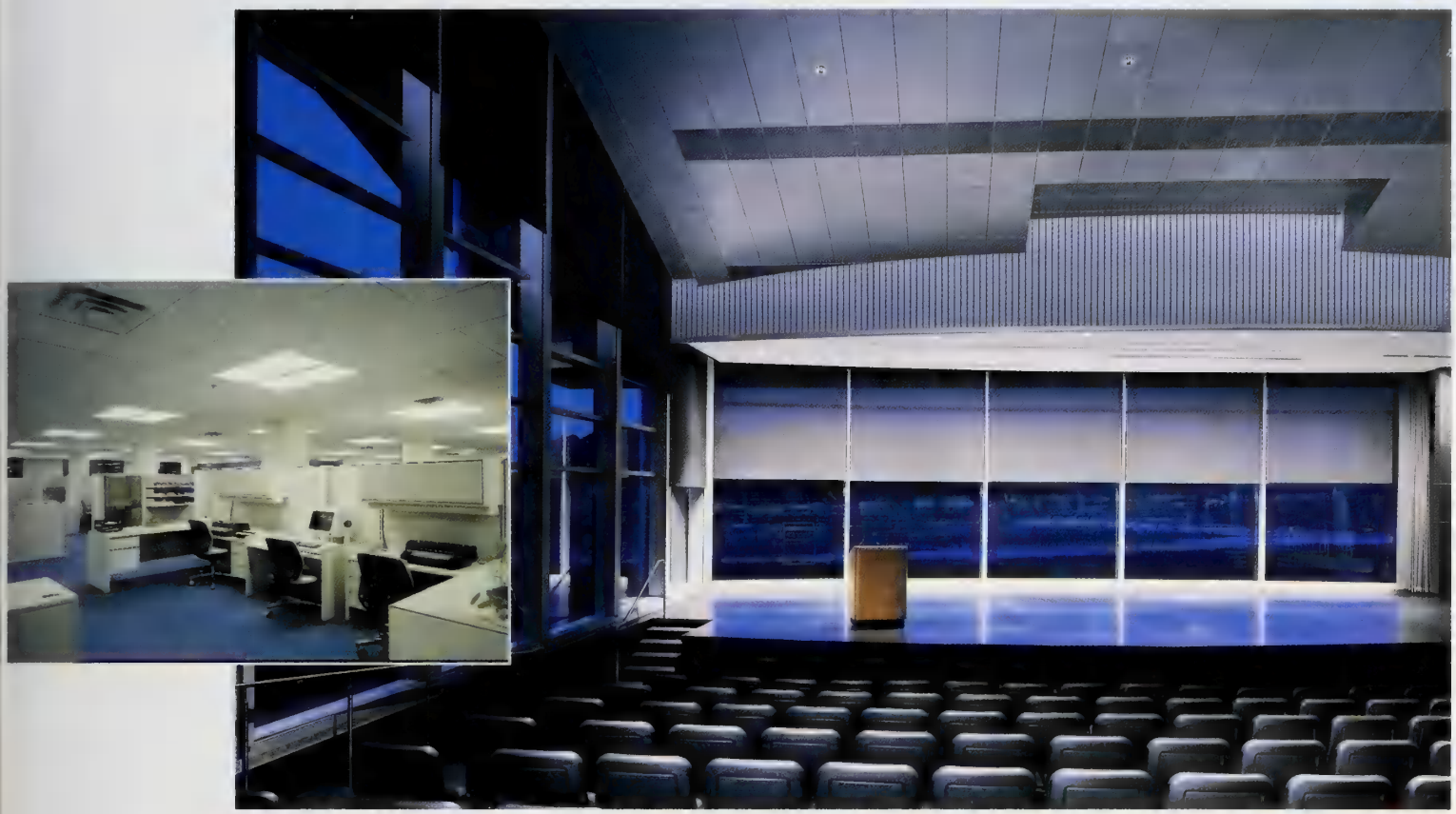
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USG *Presents*

Understanding Acoustics in Architectural Design

by: *James D. Janning, AIA, CSI*
Architectural Systems Manager, USG Corporation

In today's architectural environment, good acoustical design isn't a luxury – it's a necessity. Acoustics impacts everything from employee productivity in office settings to performance quality in auditoriums to the market value of apartments, condominiums and single-family homes.

While the science behind sound is well understood, using that science to create desired acoustical performance within a specific building or room is complex. There's no single acoustical "solution" that can be universally applied to building design. Each built environment offers its own unique set of acoustical parameters. The acoustical design for a business conference room, for instance, differs greatly from the design needed for a kindergarten classroom.

Understanding these differences and knowing how to utilize building materials, system design and technologies are key factors behind successful acoustical design. This article will provide basic background on the science and measurement of sound, as well as insights into some of the principles of wall partition and ceiling system acoustical design.

The Science of Sound

Technically speaking, sound is defined as a vibration in an elastic medium. An elastic medium is any material (air, water, physical object, etc.) that has the ability to return to its normal state after being deflected by an outside force such as a sound vibration. The more elastic a substance, the better it is able to conduct sound waves. Lead, for instance, is very inelastic and therefore a poor sound conductor. Steel, on the other hand, is highly elastic and an excellent sound conductor.

Sound vibrations travel through elastic mediums in the form of small pressure changes alternating above and below the static (at rest) nature of the conducting material. Picture a vibrating tuning fork. As it moves in one direction, it compresses the air particles next to it. They, in turn, pass on the reaction to adjacent particles of air. As the tuning fork vibrates in the other direction, it leaves a void or rarefaction. This rarefaction follows along behind the compression. It, in turn, is followed by another compression, and then another rarefaction and so on.

Each of these compression/rarefaction cycles is called a wave. The number of waves that occur per second is termed frequency. Frequency is measured in terms of hertz (Hz). One Hz is equal to one cycle per second. The human ear can discern sounds ranging from approximately 20 to 20,000 Hz. Human speech ranges between 125 and 4,000 Hz.

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **Understanding Acoustics in Architectural Design**. To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 297, then follow the reporting instructions on page 168 or use the Continuing Education self report form located at *architecturalrecord.com*.

Learning Objectives:

- Know how sound waves form and how they travel through elastic mediums
- Understand how sound can be isolated and absorbed in building design
- Realize the benefits that sound masking provides for closed and open-office spaces

The amplitude of sound waves – how far they travel above and below the static pressure of the elastic medium they are traveling through – is measured in decibels (dB). The higher the decibel level, the higher the volume, or loudness of a sound. A jet airplane has an amplitude of 140dB, while a human whisper is approximately 20dB. A typical office environment usually falls in the 40 to 60dB range.

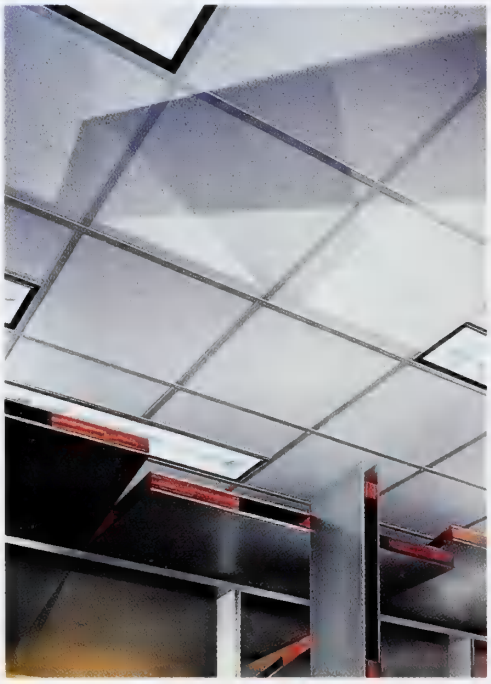
Sound Movement

Architectural acoustics is the process of managing how both airborne and impact sound is transmitted – and controlled – within a building design. While virtually every material within a room – from furniture to floor coverings to computer screens – affects sound levels to one degree or another, wall partitions, ceiling systems and floor/ceiling assemblies are the primary elements that designers use to control sound.

Sound moves through building spaces in a variety of ways. Most commonly, it is transmitted through air. But wall partitions, ceilings and floor/ceiling assemblies can also transmit both airborne sound, such as human voices and ringing telephones, and impact sound, such as footsteps on a floor. Sound waves actually travel through many physical objects faster and with less loss of energy than they travel through air. Sound waves travel at a rate of 1,128 feet per second through air (at 70 degrees F); 11,700 feet per second through wood; and 18,000 feet per second through steel.

Sound reflection occurs when sound waves bounce off smooth, hard wall, ceiling and floor surfaces. Concave surfaces tend to concentrate or focus reflected sound in one area. Convex surfaces do just the opposite; they tend to disperse sound in multiple directions.

Sound reverberation is the persistence of sound reflection after the source of the sound has ceased. Reverberation can have both a positive and negative effect in architectural design. For example, specifying highly reflective ceiling panels directly above the stage area in an auditorium will help direct sound toward specific seating areas, thus enhancing the room's acoustical performance. However, that same reflective performance will become a negative factor if highly reflective wall and ceiling materials are installed in the rear of the auditorium. That's because the sound reflections from the rear of the room take too long to reach the audience, resulting in a distracting echo effect.



Water-felted mineral fiber panels have face perforations to improve acoustical performance. They are the most economical acoustical ceiling choice.

Sound can also diffract, or bend and flow around an object or through a small space or opening. This gives sound waves the ability to "squeeze" through very small openings with little loss of energy. The small openings under and around doors, floor tracks, electrical boxes and conduit and HVAC ducting are typical sources of sound diffraction. These are commonly referred to as "flanking" or "leaking" paths. They can be controlled by the proper application of acoustical sealant.

Isolating Sound

A primary goal of a wall partition, ceiling system and floor/ceiling assembly design is to minimize the flow of airborne and impact sound through the use of special materials, methods of construction and designs.



Polymer-matrix ceiling panels feature smooth, natural textures, excellent sag resistance and excellent NRC and CAC performance.

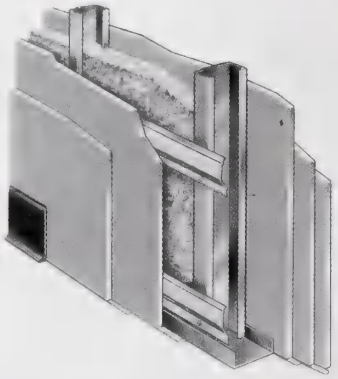
The effectiveness of an assembly's ability to isolate airborne sound is quantified by Sound Transmission Class (STC) ratings. STC is expressed as a single number and usually ranges from approximately 35 to 70. It quantifies the transmission loss (TL) of an assembly. A wall partition or floor/ceiling assembly that reduces the overall incoming sound levels from 80dBA to 20dBA would have an STC rating of approximately 60.

A related measurement is Ceiling Attenuation Class (CAC). This rating quantifies how much sound is lost when it is transmitted through the ceiling of one room into an adjacent room through a common plenum. Like STC, a higher CAC rating indicates that the ceiling system allows less sound transmission. For closed-office environments, a CAC of 40 to 44 is usually desirable.

Impact sound transmission in a floor/ceiling assembly is quantified by Impact Isolation Class (IIC). This is a single number rating that quantifies an assembly's ability to isolate impact sounds generated from footsteps and other impact sources. It is tested in laboratory conditions by a tapping machine that impacts the floor of a "source" room. The sound of the tapping is measured in a "receiving" room, located directly beneath the source room.

Wall Partitions and STC

Reducing sound transmission through wall partitions can be accomplished in a variety of ways, including isolation (the separation of adjoining wall partition surfaces), mass, absorption, decoupling (inelasticity) and the elimination of flanking paths (sound leakage).



Designing High-STC Wall Partitions: This gypsum board wall assembly uses mass (2 gypsum board layers are on one side, and 3 layers are on the other side), decoupling (resilient channels are screw-attached to the steel studs) and absorption (a layer of mineral fiber insulation is friction-fitted in the partition cavity) to enhance STC performance.

Increasing the mass of a partition forces sound waves to work harder and expend more energy to pass through the medium. Specifically, doubling the mass of a partition can reduce sound transmission by up to 5dB. However, using mass alone to increase sound control has definite limitations. To achieve a 60dB reduction, a total mass of 320 pounds per square foot is required. This is equivalent to approximately 3 feet of solid concrete, which is obviously impractical for virtually any building design.

Isolating air space within a partition is an effective means for raising STC performance, but like mass, it has its limitations. Doubling the partition air space can reduce sound transmission by up to 5dB, but to achieve a reduction of 60dB requires an isolated air space 4 feet wide. Again, this is hardly practical for building design. The effectiveness of air isolation is limited by the fact that the



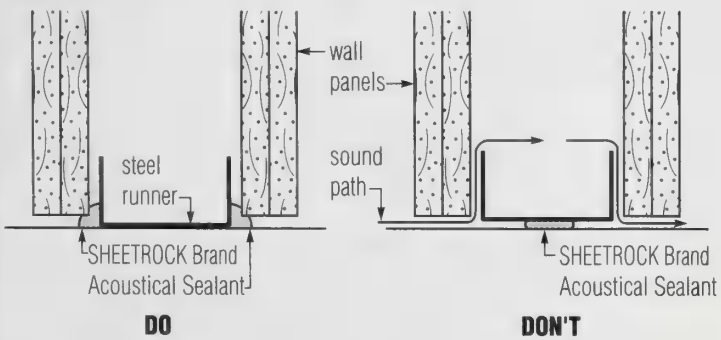
Cast mineral fiber ceiling panels feature natural textures, integrated color and excellent durability. Their high NRC and CAC values make them a versatile option for a wide range of applications.

wood or steel studs attaching both sides of the partition assembly transmit sound no matter how wide the isolated space. Like electricity, sound waves seek the path of least resistance, which in this case is the structural framing.

Adding a layer of fibrous sound-absorbing insulation material, such as mineral wool, into the partition cavity dissipates sound by creating friction, which transforms sound energy into heat. Again, however, the effectiveness of sound attenuation blankets is limited by the presence of studs, which provide a direct route for sound waves to travel through the assembly.

Decoupling the partition through the use of resilient channels, which decouples the surface diaphragm from the structural member, increases the effectiveness of both air isolation and absorption. Resilient channels are attached to framing, with the attachment leg facing down. The screws attaching the gypsum panels should not penetrate through the channel and into the stud, as this negatively impacts resilient channel acoustical performance.

Finally, sealing flanking paths (small air gaps that enable sound to travel with little energy dissipation) is a critically important factor in controlling sound transmission. A properly sealed wall assembly featuring two layers of 5/8-inch gypsum board on both sides and a 1 1/2-inch thick sound attenuation blanket achieves an STC of 53. The same wall without the acoustical sealant has an STC of approximately 29 – a dramatic difference. The key is to apply an adequate bead of acoustical sealant on the outside edge of the floor, ceiling and intersection tracks on both sides of the partition. Applying bead to only one side of the assembly does not fully seal all possible flanking paths. It is necessary to acoustically seal both the space between the floor track and the floor, and between the panel and the track.



Sealing flanking paths in wall partitions is a critically important factor in controlling transmission. An adequate bead of acoustical sealant should be applied to both outside edges of the floor, ceiling and intersection tracks (left).

Ceiling Panels and NRC

Another way to control airborne sound within a room is through the use of materials that absorb sound by converting sound waves into heat. The ability of a material to absorb sound is quantified by Noise Reduction Coefficient (NRC) ratings. NRC represents the average amount of sound energy a material absorbs over frequencies between 250 and 2,000 Hz. NRC values range from 0.00 to 1.00. To have any acoustical value at all, a material must have a minimum NRC of 0.50. That means that the material absorbs 50 percent of the sound and reflects the other 50 percent. An acoustical material that doesn't reflect any sound (it absorbs 100 percent) has an NRC of 1.00.



Dry-felted glass fiber ceiling panels typically offer the highest NRC values (.95 to 1.00) in the industry, making them ideal choices for open offices and other areas requiring speech privacy.

NRC is a key factor in determining the performance of acoustical ceiling panels. Various types of ceiling panels provide varying levels of NRC, as well as CAC performance.

Cast mineral fiber panels offer the best combination of NRC and CAC. The panels are made from an individual cast process that combines excellent sound absorption properties with outstanding durability. The NRC performance of cast panels ranges from 0.65 to 0.95 and the CAC performance ranges from 35 to 44. Cast panels are ideal for conference/speech privacy areas, as well as hospitality, entertainment and retail environments.

Polymer-matrix mineral fiber ceiling panels combine a smooth, natural texture with high NRC (ranging from 0.65 to 0.95) and high CAC (35 to 39). The panels offer superior sag resistance and outstanding dimensional durability. They are non-perforated and ideal for room-to-room privacy areas, as well as reception and lobby areas, hotels, offices and other applications where sound absorbency is needed.

Dry-felted glass fiber panels offer extremely high NRC ratings (0.95 to 1.00), but CAC ratings of 20 to 29 are lower than other types of acoustical panels. The lightweight, sag-resistant panels are ideal for open floor plans, retail stores, auditoriums and gymnasiums, conference rooms and executive offices, but are not recommended for office-to-office privacy.

Water-felted mineral fiber ceiling panels are made using a dense, continuous manufacturing process that orients the mineral fibers for optimal sound absorption. The panels feature perforations and fissures in the surface to enhance sound performance, and range in NRC from 0.50 to 0.60. Their CAC ranges from 35 to 39. The panels come in a wide range of textures and colors and offer a cost-effective choice for a variety of general-purpose applications.

Generally speaking, panels with a high NRC are good choices for open-office areas, healthcare facilities, schools and other applications where speech privacy is a priority. Panels with a high CAC are best for private offices and other areas where sound needs to be confined within a particular space.

In open-office settings, the ceiling's acoustical performance can be significantly enhanced through the use of sound-masking technologies. Sound-masking systems produce electronic sounds similar to that of softly blowing air. The sound is projected through special speakers installed above the ceiling panels. Sound masking is set 3 to 5 decibels above conversational speech, thus enabling speech privacy and alleviating distractions from other office noise. (For more

information on sound masking in open office environments, see the "Sound Masking: An Effective Solution for Open Office Environments" article below.)

Successful Acoustical Design

When creating acoustical specifications, remember that every space presents a unique acoustical challenge. An employment office, for example, may require all-confidential private offices, while a bank may warrant varying levels of speech privacy. In office settings, conference rooms and executive offices usually require high levels of acoustical control, but other areas may require only moderate measures. Consider the past environment of the occupants. What are they accustomed to? Next, establish the privacy needs of the occupants and finally, establish the privacy potential of each working space. Which areas, given the layout preference, offer the best potential for confidential uses? And which will work better in a more open environment?

Successful acoustical design is a detail-oriented process, both in terms of specification and construction. Careful material and systems specifications are imperative, as are good construction practices. Acoustical performance often depends not so much on what was done correctly, but what was done incorrectly. The key to success is careful attention to detail during all phases of planning, design and construction. ■

Sound Masking: An Effective Solution for Open-Office Environments

The demand for open office environments isn't going away. A report by The International Facility Management Association (IFMA) shows that more than 80 percent of respondents use open-plan systems in their space planning.

In addition, many businesses are now allotting less space to employees within open plans, upping the number of people within a room in order to cut overhead. And the trend toward a "team" environment has brought upper management and other executives out of their once private offices and into the mix.

Add speaker phones, voicemail and other noisy technology, and the office environment can easily become distracting. With statistics showing that productivity levels in a non-distracting space will rise anywhere from 3 to 20 percent, open-office acoustics are an increasingly critical design issue for architects.

This isn't to say that the role of the architect is to create an office that is dead quiet. In very quiet environments, employees, clients and/or customers often won't speak in a normal tone of voice and instead will lower their voices to near-whispers in order not to distract other employees and to avoid being overheard. And the smallest of sounds, from a tapping pen to a clicking keyboard, can easily shatter the fragile concentration of coworkers.

As office walls come down and more employees are packed together into the workplace, privacy is affected as well. And industry research indicates that workplaces will continue to become noisier, affecting employee productivity, morale and retention.

Architects are increasingly turning to sound masking to override sounds that can't be absorbed or blocked by design elements such as carpeting, acoustical wall panels, ceiling panels or partitions. At the other end of the spectrum, sound masking in quiet environments allows employees to speak at normal conversational levels while maintaining speech privacy.

Today's sound masking has gone well-beyond simple white noise machines. Diffracted sound can be masked with electronically produced sound that's evenly distributed through a space by speakers placed above the ceiling.

Sound masking provides a constant, fixed level of unobtrusive background sound that is set to cover speech level and soften other office noises, which then do not appear as distractions to the human ear. To be effective, the masking level should be 3 to 5 decibels louder than incoming speech from adjacent work stations. In an open plan office, the STC (Sound Transmission Class) and NRC (Noise Reduction Coefficient) must be balanced to achieve good speech privacy, while the background sound levels are comfortable and uniformly maintained.

Because sound masking is complementary to the speech spectrum and effectively covers speech levels, it reduces the intelligibility of conversations, which makes conversations less distracting to those working nearby.

Architects should consider specifying sound-masking units that have a step attenuator, a rotating volume control for precise sound level adjustment volume control and a rotating volume control for paging/music. Units should be able to produce up to 86dBA to meet the requirements for all ceiling treatments, and should have adjustable sound spectrum shaping controls in order to meet the varying spectral requirements of drywall ceilings, various types of ceiling panels, air return grills and openings around lighting fixtures. The sound-generating units must also generate random sequence sounds and not produce a noticeable repetitive pattern or sequence.



Lencore's Spectra Sound Masking creates a harmonious atmosphere in which to work that increases people's ability to concentrate, restores speech privacy and allows for greater employee productivity and efficiency.

While effective sound-masking systems have traditionally utilized loudspeakers strategically placed above the office ceiling to produce uniform sound masking throughout the workspace, one of the newest and most popular options for architects are sound-masking systems that work in tandem with acoustical ceiling panels. These ceiling sound-masking systems are superior to other types of centralized or flat-surface speakers alone, giving the architect more options and control over ceiling design and sound-masking systems. These systems can be ordered from the acoustic ceiling panel manufacturer and/or the sound-masking company.

Click for Additional Required Reading

As part of this CES activity, you are required to read the "Room Acoustics" section of USG Corporation's Sound Control Manual. To access the material online go to http://www.usg.com/Design_Solutions/2_3_11_acoustics.asp. To request a faxed copy of the material, contact Marty Duffy at (312) 606-5781 or mduffy@usg.com. (For a further detailed discussion of sound and acoustics you can access other sections of this document at that site, but only the Room Acoustics section material is included in the final quiz.)

Learning Objectives

- Know how sound waves form and how they travel through elastic mediums
- Understand how sound can be isolated and absorbed in building design
- Realize the benefits that sound masking provides for closed and open-office spaces

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 243. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. The more elastic a substance, the better it is able to conduct sound waves.
A: a. True
b. False

Q: 2. A higher CAC rating indicates that a ceiling system allows more sound transmission.
A: a. True
b. False

Q: 3. Ways to isolate sound include all but which of the following:
A: a. Increasing the mass of a partition
b. Isolating air space within a partition
c. Installing masking systems
d. Sealing flanking paths

Q: 4. A wall partition or floor/ceiling assembly that reduces the overall incoming sound levels from 80dBA to 20dBA would have an STC rating of approximately:
A: a. 100
b. 60
c. Minus 60
d. One quarter (1/4)

Q: 5. To seal flanking paths, the key is to apply the acoustical sealant:
A: a. On the side of the assembly where the source originates
b. On both sides of the assembly
c. On the side of the assembly where the sound is being received

Q: 6. An acoustical material that doesn't reflect any sound has an NRC of:
A: a. 0.00
b. 0.50
c. 1.00

Q: 7. Which ceiling panels offer the best combination of NRC and CAC?
A: a. Cast mineral fiber panels
b. Water-felted mineral fiber panels
c. Dry-felted glass fiber panels
d. Polymer-matrix mineral fiber panels

Q: 8. Generally speaking, panels with a high _____ are good choices for open-office areas.
A: a. CAC
b. IIC
c. NRC

Q: 9. The purpose of sound masking is to:
A: a. Provide a distraction to speech and office sounds
b. Cover speech level and soften other office noises
c. Create an office that is dead quiet and therefore more productive
d. Promote the open-office team environment

Q: 10. To be effective, sound masking should be:
A: a. 3 to 5 decibels lower than incoming speech
b. the same decibel level as incoming speech
c. 3 to 5 decibels louder than incoming speech

Q: 11. Match the term with the correct definition:
A: a. Noise Reduction Coefficient (NRC)
b. Sound Transmission Class (STC)
c. Ceiling Attenuation Class (CAC):
1. Quantifies the effectiveness of an assembly's ability to isolate airborne sound.
2. Quantifies how much sound is lost when transmitted through a ceiling of one room into an adjacent room through a common plenum
3. Quantifies the ability of a material to absorb sound

About USG

USG Corporation is a *Fortune 500* company with subsidiaries that are market leaders in their key products groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling panels and grid; and building products distribution. The company received the 2001 AIA/CES Award for Excellence for its commitment to providing quality continuing education programs.

USG subsidiaries United States Gypsum Company and USG Interiors, Inc. are industry leaders in the design, development and testing of acoustical wall, floor and ceiling systems.

USG Interiors, a leading manufacturer of acoustical ceiling panels and suspension systems, offers a wide range of cast, polymer-matrix mineral fiber, glass fiber and water-felted mineral fiber ceiling panels to accommodate virtually any acoustical design. The company's recently introduced HALCYON™ CLIMAPLUS™ Ceiling Panels provide a highest-possible NRC rating of 1.0. The panels other superior sound performance for open offices, lobbies, libraries and other areas where acoustical privacy is a priority.

USG Interiors has formed a strategic partnership with Lencore Acoustics Corp., to offer Lencore's state-of-the-art sound-masking systems with all USG acoustical ceilings.

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For further information about USG's acoustical wall, ceiling and floor systems, write USG Corporation, P.O. Box 806278, Chicago, IL 60680-4124, call USG 's Customer Service Department at 800-USG-4YOU or visit the company's Web site at www.usg.com.

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WHERE WE STAND

AIA First Quarter 2002 Financial Results

To members of the AIA,

Our new financial year is off to a healthy start with encouraging news. Our solid performance last year has been confirmed by the 2001 financial audit. The dissolution of AEC is final. Our continuing commitment to operating in a disciplined and business-like manner is demonstrated by the fact that we are ahead of budgeted targets for the first quarter of 2002.

2001 Audit Shows Income and Asset Targets Exceeded

We have received a clean audit opinion for 2001 from our accounting firm. Both net income and total net assets for 2001 exceeded our plan. The completed audit confirms that total net assets improved by $3.1 million and now stand at a positive $1.66 million. This significant change resulted from three factors: a) AEC's total lifetime cost to AIA was far less than expected; b) the extension of the magazine contract with McGraw-Hill; and c) the 2001 operating budget provided a positive contribution to assets of $1.4 million, exceeding the budgeted goal. This is the second year in a row during which the Institute's operating revenues exceeded expenses.

AEC Officially Dissolved

The Delaware Secretary of State has confirmed the corporate dissolution of Architects-Engineers-Contractors, Inc. (AEC), effective January 30, 2002. As a result, AEC's corporate life has officially ended.

First Quarter of 2002 Ahead of Plan

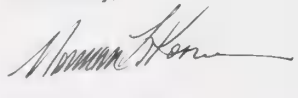
Our balanced budget goal continues into the first quarter of 2002. Operating expenses for the first quarter of 2002 are down. Combined with a slightly higher than planned first quarter revenue, our operating net income is higher than budget as of the end of March. Overall, our first quarter net income exceeds our plan by 6.8%.

Going Forward

We are progressing toward improved member service and feel confident that the growing financial health of AIA means better professional services for our 70,000 members. We have operated with balanced budgets and achieved surpluses for the last two years. We intend to make 2002 the third year in a row of fiscal stability and asset growth.

I welcome your comments.

Sincerely,



Norman L. Koonce, FAIA
Executive Vice President/Chief Executive Officer

AIA Balance Sheet ($000's)

	Audited 2000	Audited 2001
Assets		
Cash	$3,122	$2,036
Investments	10,022	8,853
Property and Equipment, net	11,179	10,531
Deferred Publication Costs	3,175	2,704
Accounts Receivable	2,136	1,247
Other Assets	1,642	2,166
Total Assets	**$31,276**	**$27,537**
Liabilities		
Line of Credit	$5,500	$1,397
Accounts Payable	7,590	2,928
Deferred dues and other revenue	2,554	5,312
Notes Payable	17,107	16,237
Total Liabilities	**$32,751**	**$25,874**
Net Assets		
Unrestricted	(5,724)	(1,489)
Temporarily Restricted	3,194	2,097
Permanently Restricted	1,055	1,055
Total Net Assets	**($1,475)**	**$1,663**
Total Liabilities & Net Assets	**$31,276**	**$27,537**

AIA Financial Results March 2002 ($000's)

	YTD March Budget	YTD March Actual
Revenue	$20,511	$20,748
Operating Expense	(8,747)	(8,170)
Operating Net Income	**$11,764**	**$12,578**
Non-Operating Income	51	37
Unrestricted Net Income	**11,815**	**12,615**
Restricted Income	5	8
Total Net Income	**$11,820**	**$12,623**

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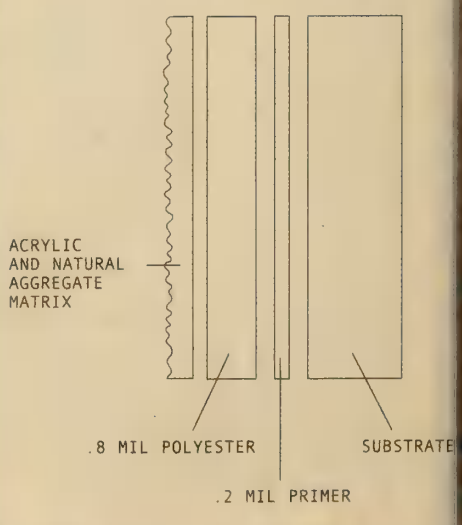
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Digital Practice

IN THIS SECTION: Putting the Parthenon back together again [page 175] • AIA architects gather to talk collaboration [page 176] • How Hewlett-Packard could replace your repro house [page 178] • Mapping spaces and places: geographic information systems [page 180] • Digital Architect looks at display devices [page 189]. *Deborah Snoonian, P.E.*

BYTES

In April, Autodesk acquired 3D CAD developer Revit Technology Corporation for $133 million cash. Revit will continue to be headquartered in Waltham, Mass.

Graphisoft's new Plan2Model software can generate intelligent 3D ArchiCAD models from 2D floor plans produced in nonparametric CAD software.

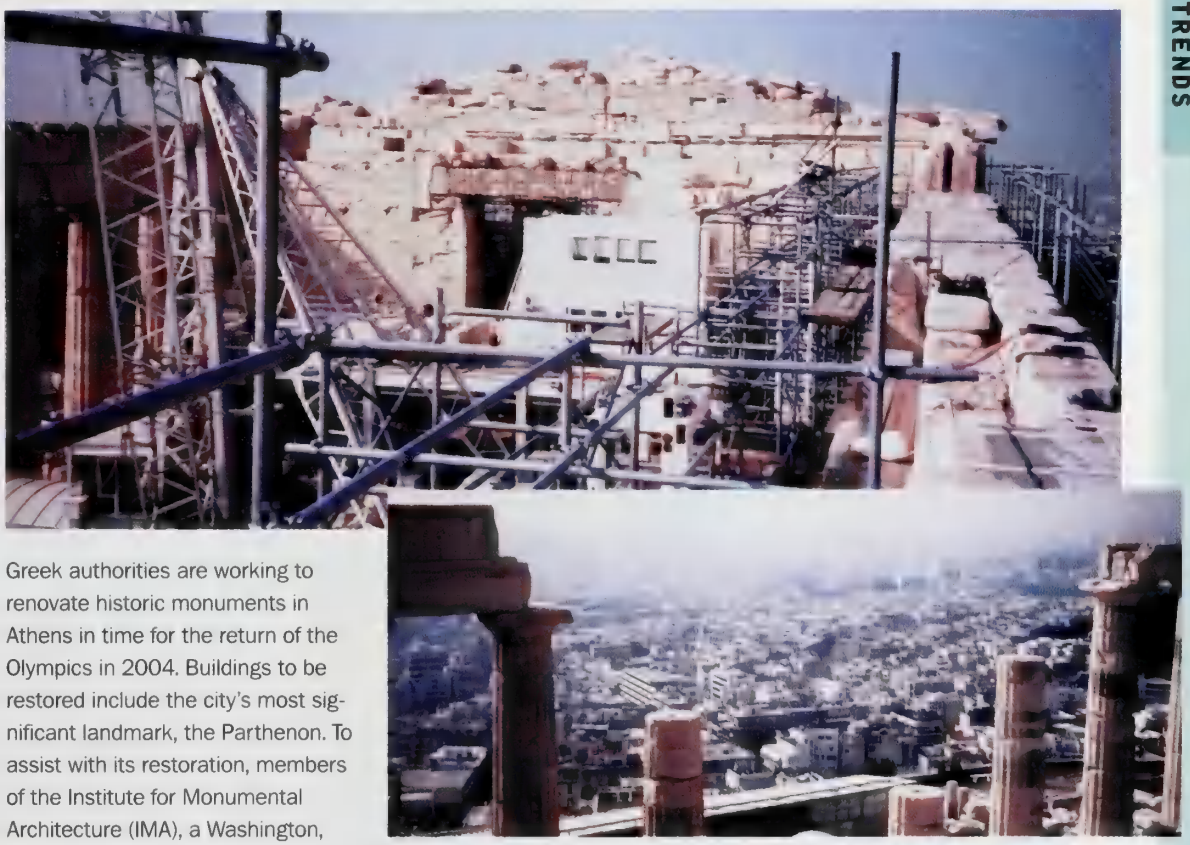
Timberline's latest release, CAD Integrator, is the first cost-estimating software to use Industry Foundation Classes (IFCs) developed by the International Alliance for Interoperability (IAI). Designers can use it to generate takeoff lists and cost estimates directly from IFC-compliant CAD models.

Newcomer Common Point Technologies is offering InviznOne, a CAD-based 4D visualization tool (three dimensions plus time) for design and construction management. The software was developed jointly by Walt Disney Imagineering and Stanford's Center for Integrated Facility Engineering, and it has been used on projects like Frank Gehry's Disney Concert Hall.

Bentley Systems filed for an initial public offering. The company says it will use a portion of the proceeds to acquire Rebis, a software developer for the manufacturing industry.

Meridian Project Systems has released Prolog Scheduler, an Internet collaboration product that helps geographically dispersed design and construction project teams coordinate their tasks. It's designed to work with the company's popular Primavera scheduling software.

Parthenon's rebuilding may be aided by laser-scanning technology



The Institute for Monumental Architecture is hoping to digitize the Parthenon so that 3D virtual models can be used to aid its restoration.

Greek authorities are working to renovate historic monuments in Athens in time for the return of the Olympics in 2004. Buildings to be restored include the city's most significant landmark, the Parthenon. To assist with its restoration, members of the Institute for Monumental Architecture (IMA), a Washington, D.C., nonprofit organization that specializes in computerized spatial documentation, are offering to construct 3D models of the temple based on data gathered with laser scanning. If approved by the Greek Ministry of Culture, the effort will mark a significant development for a quickly advancing technique in restoration, says the IMA.

"I think this effort is going to have a profound impact on the course of architecture and preservation in the future," says Scott B. Knox, Assoc. AIA, president of the IMA. "The accessibility of a full three-dimensional [digital model] of existing architecture will help architects make more informed decisions on how to restore, renovate, and preserve existing buildings."

According to the IMA's plan, light scanners will be placed around the entire surface of the Parthenon—at approximately 70 overlapping points—recording spatial data, which will be used to make high-resolution 3D computer models of the site. Software to be employed includes Polyworks, Rhino, AutoCAD, Microstation, and Solidworks. The digital models will also be compared to historical documentation of the Parthenon, particularly that produced by architect Francis Penrose—the first architect to measure and document the building's geometry—in the 1840s and 1850s.

A 1:100 scale plastic model will then be produced using stereolithography, also known as 3D printing—a common production method in rapid prototyping for manufacturing. In this process, a machine reads the 3D digital model, which is converted into a solid shape by a laser that "cures" a liquid resin on contact into solid plastic in layers that are only 1/10 millimeter thick.

Both models, says Knox, will allow renovation architects to better visualize the Parthenon's physical structure, study its existing conditions,

Digital Practice

BYTES

An online scholarly journal focusing on digital technology and architecture will be available starting this fall at www.architect.org.

MIT's Media Laboratory and the Department of Architecture have created a new consortium called Changing Places, an expansion of their House_n research effort. It will focus on the development of new technologies, new materials, and design strategies for the home, the workplace, and the city, including sensing technologies, delivery of "just-in-time" information, and a "Place Lab" to study how people interact with technology in the built environment.

CBN Systems has released a computer-based color-creation and -formulation standard that precisely matches on-screen colors to formulations of colorants, pigments, and dyes. The technology can be used to specify colors for paint, stain, concrete, stucco, and other building products and interior finishes. The specification software can be downloaded free of charge from www.cbnsystem.com.

The AIA and Rolf Jensen & Associates have developed an online tool that helps architects understand the new International Building Code. It offers analysis and side-by-side comparisons with the current versions of the National Building Code, the Standard Building Coder, the Uniform Building Coder, and NFPA's Life Safety Code. The tool is available through the "MyAIA" member-only portal on www.aia.org.

LaserPlans, a new floor-mapping system by ActivMedia Robotics, consists of a wheeled sensing device that collects audio and odometric data as it is pushed through a building. Special software converts the data points into an electronic floor plan that can be augmented with photos, text labels, or other information.

and test future assemblies. Architects will be able to observe the temple at various distances and angles, and the virtual models can be animated, moved, and rotated in space.

"Once architects were master builders. They worked three-dimensionally on-site. With this technology, architects can design a project in 3D from the beginning again," sums up Knox.

Knox has gathered a group to assist with the project that includes Paul Debevec of the University of Southern California's Institute for Creative Technology; engineers from Spatial Integrated Systems, a firm that specializes in laser scanning; and Arup & Partners. Funding would come from IMA's budget, provided mostly by grants from private donors.

The IMA is still seeking a permit from the Greek Ministry of Culture to proceed with the project, but preservationists appear to back the idea. Dr. Manolis Korres, head of the Committee for the Preservation of the Acropolis Monuments, a task force of the Greek Ministry of Culture that oversees renovations at the Acropolis, wrote in a statement to the IMA that the models would be useful for making an "accurate verification of the fractured surfaces," and for "production of marble additions for the damaged stones." He concluded: "I wholeheartedly support the proposal submitted by Mr. Knox." Knox is not fazed by the review process, saying the Ministry of Culture is being necessarily thorough.

Blaine Cliver, secretary of the U.S. International Council on Monuments and Sites (ICOMOS), points out that while other techniques, like photogrammetry, can produce 3D virtual models, laser scanning is the best choice for the Parthenon because enough data points will be collected to take into account the weathered, uneven condition of the monument's surfaces.

Knox is confident the project will go forward and believes the arduous process of digitizing the Parthenon will pay dividends down the road. "Even to have a small role in [restoring] the Parthenon is worthwhile," he says. "This effort should spawn greater appreciation for efforts to preserve history around the world." *Sam Lubell*

At "Six Degrees of Collaboration," architects mull over the conundrum of helping far-flung project teams work together

At the peak of cherry blossom season in Washington, D.C., more than 100 architects, firm IT managers, and software manufacturers gathered at AIA's headquarters for two days to discuss how they're getting together—specifically, how they're using technologies that enable collaboration with others in the design and construction field. Sponsored by the AIA's Technology in Architectural Practice Committee (TAP) and Revit Technology Corporation, with assistance from Sigma Design, Graphisoft, Arc Second, and RECORD publisher McGraw-Hill, the conference aimed to assess how (and if) these tools have made inroads into practice, and to identify barriers to their use and implementation.

Most agreed that although technical limitations exist, they don't account entirely for relatively slow adoption of collaboration tools by architects [RECORD, March 2002, page 162]. "The issues that inhibit collaboration are social, political, and cultural," said James Brogan, AIA, during the the opening plenary session. Brogan was the 2001 chair of TAP and is currently the IT director at Kohn Pedersen Fox in New York. Others expanded on this theme. "We have boxed ourselves in and too narrowly defined our role," said Jonathan Cohen, AIA, author of *Communication and Design with the Internet* and a member of TAP's advisory group. Darren Rizza, Assoc. AIA, C.I.O. of Swanke Hayden Connell Architects, reminded the group that sharing architectural information with everybody from specifiers to owners is a radically new way of practicing, and one that "architects are still getting used to."

Breakout sessions addressed a range of topics, including business continuity, interoperability, research, and legal issues that arise due to increased data sharing. The most interesting technological discussions centered on schools of architecture that are testing collaboration methods. Ever at the forefront, the University of Washington's Design Machine Group is working with students to design more intuitive CAD programs, said assistant professor Ellen Yi-Luen Du. And Texas A&M is moving toward the notion of a "distributed design school," said professor Mark Clayton, with students in different disciplines and off-site campuses assigned to work on projects together, all mediated by communication technology. The fact that the schools are more of a collaboration hotbed than firms are is testament to the techno-prowess of younger architects and the flexibility afforded by educational programs that are neither fee-driven nor deadline-encumbered.

In the end, the conference was less about technology and more about questioning the status quo of practice, something the AIA has been examining from many angles. "Six Degrees" covered little new territory, but participants walked away knowing that the barriers they face in implementing solutions are shared by their peers, and they also felt better equipped to overcome them.

Although a handful of international participants made the trek to Washington, women and minorities were noticeably scarce during the proceedings, a reality that may have a lot to do with the hindered state of collaboration among architects today. Unless and until the profession itself can achieve a level of diversity that more accurately reflects the society in which designers work, collaboration with an increasingly global workforce might continue to be stymied. *D.S.*

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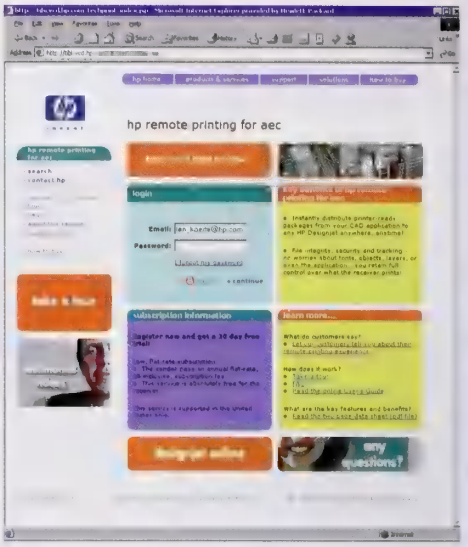
New service offered by Hewlett-Packard lets designers circumvent repro houses

Are you tired of rushing off to the repro house or waiting around for a FedEx package each time a cross-country colleague makes a change to a drawing? If so, Hewlett-Packard's new service may be for you. The company is rolling out HP Remote Printing, a new large-format document service that doesn't require sign-up with a repro house or online collaboration service like e-Builder or Constructware. The new service lets users exchange scanned-in, marked-up documents directly over the Internet for printout on HP plotters in their own offices.

Architect Gary Roberts, owner of GRA Architecture in Sacramento, California, was a beta tester for the new service. He used it with a group of engineering and contractor partners. "So much of what architects do is time-related, particularly once a job is under construction," says Roberts, whose five-person firm does commercial and institutional work. "I might have 10 people [waiting] around to see a drawing. Now, if I need a revised drawing from an engineer, I can have hard copy in my office in time for my next meeting."

HP Remote lets an architect send a document to either a local plotter or to an e-mail address for printing. For security's sake, documents are encrypted and transmitted to an HP-operated Web server in read-only format. To transmit a document, the sender registers on the HP Remote Printing home page, clicks the "upload" button, and adds the e-mail address of the recipient. The recipient then receives an e-mail message with a link to a secure Web site, where she can view a thumbnail of the drawing and decide whether or not to accept it. No special software for the service is required for either the sender or the recipient.

Roberts had previously used timeworn methods of document distribution. "I'd [have] blueprints copied. Generally, we didn't get the drawings the same day," he admits. He purchased HP's service when it became available in March; the cost is $360 annually with a free 30-day trial.



HP's newest service lets firms print to any registered Designjet printer via the Internet.

"HP Remote Printing is a new service, and it'll take a while for it to make its way into the industry. If contractors get plotters for their trailers, though, they'll be able to print out the updated drawings directly at the construction site," Roberts predicts.

The catch to HP Remote, not surprisingly, is that it works only for HP plotters—specifically, the DesignJet large-format professional-series printers. Sandy Gramley, DesignJet manager at HP, cites alternative methods of remote digital reproduction, but dismisses them as less practical than HP Remote. "If you send me a document [attached] to an e-mail, I need your application to open [and print] the document. If you send it to me as a plot file, I need to have the driver for your printer. Even then, it might not print correctly," Gramley cautions. She stresses the service is not meant to replace repro houses. "We're simply trying [to provide] a tool for the iterative phase of design. If you need a large set of drawings for final distribution, or if you need archives, a repro house is probably a better way to go."



HP's Designjet Copier cc800ps can be used with the Remote Printing service.

Other companies are also trying to make large-format printing easier and more seamless for architects. CAD leader Autodesk is marketing its server-based Plans & Specs product, mainly to repro houses using Océ printers.

The repro houses pay a fee to Autodesk for the service, then charge their AEC clients in turn for the service. The fee varies depending on the number of drawings stored and printed.

One big Autodesk customer, though, has decided to act as its own service bureau: A large architectural firm (which wished to remain anonymous) has bought the server-based Plans & Specs product for its own internal use—a hefty investment.

Meanwhile, repro houses are stepping into the fray with their own Web-based services for remote printing. American Reprographics Company offers PlanWell, a service that stores nonalterable images of drawings on a secure Web site. Plans can be printed by American Reprographics regional divisions, for either pick-up or overnight delivery. "The point is to relieve the [document] management burden for customers," says David Stickney, American Repro's director of marketing.

National Reprographics, on the other hand, hosts a digital vault service called ReproMax, which enables drawings to be printed out at either an AEC customer's office or at a repro house. To print locally, though, the customer must buy a large-format printer from among several brands, and a software accounting package directly from one of National Reprographics' 183 member shops. The software lets customers track printouts for billing purposes. The ReproMax package covers consumables like ink and paper, and pricing for the service varies.

Regardless of which option you choose, it looks as though the era of on-demand printing for large-format drawings is finally dawning.

Jacqueline Emigh

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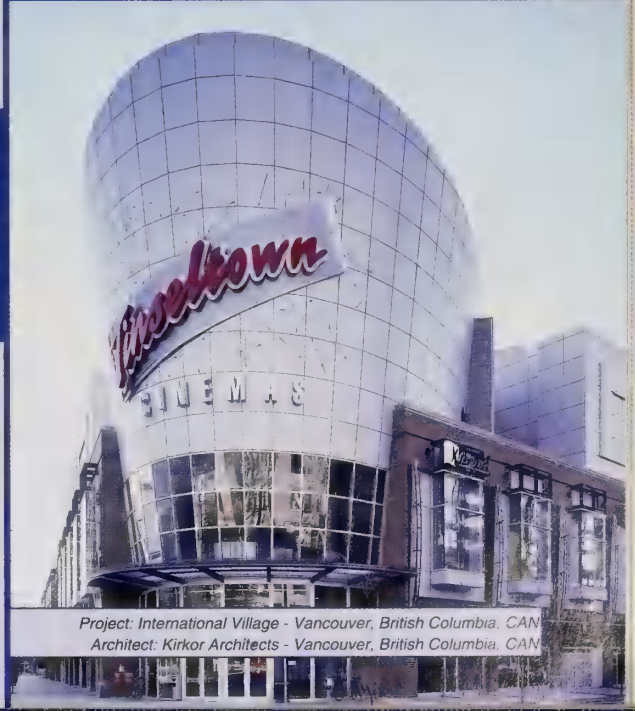
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Mapping Places and Spaces

GEOGRAPHIC INFORMATION SYSTEMS ARE IMPORTANT TOOLS FOR DEFINING THE SOCIAL AND ENVIRONMENTAL CONTEXTS OF URBAN DESIGN, PLANNING, AND ARCHITECTURE

By Bill McGarigle

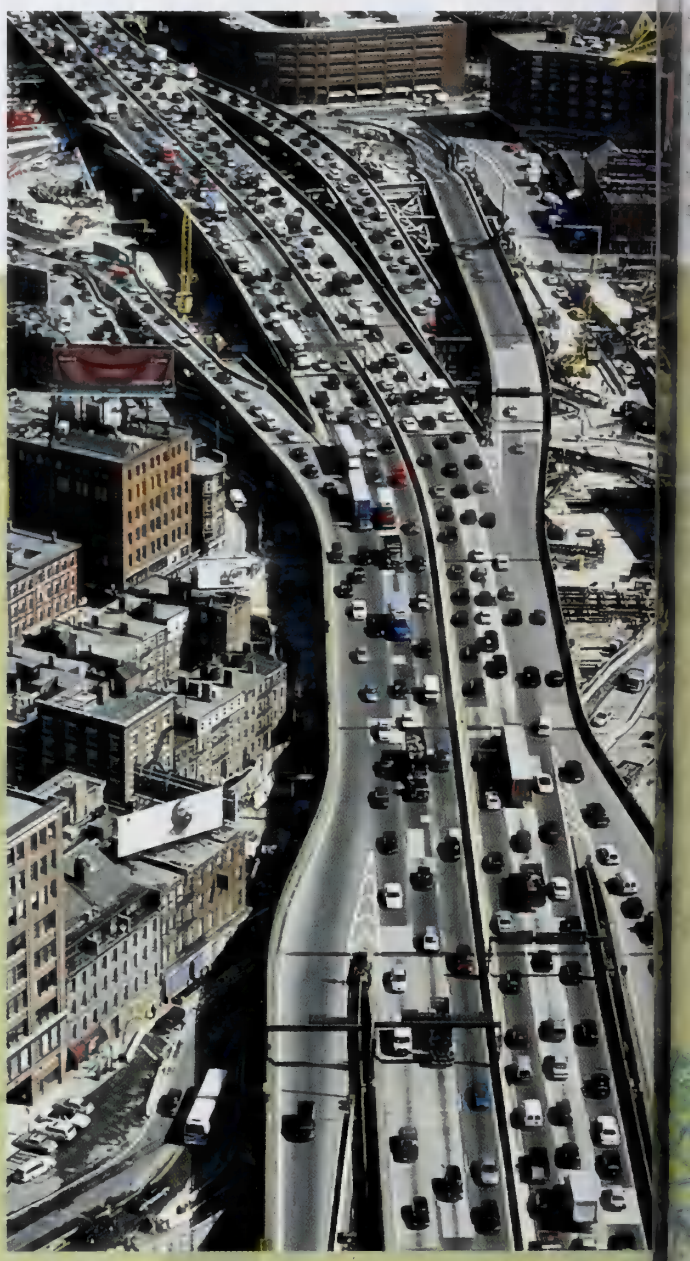
A geographic information system (GIS), a type of software system, enables a user to link any amount or kind of data to a location with either geographic- or user-defined coordinates. The data can be analyzed to find relationships and trends, and results can be visualized in 2D or 3D map layers, each representing a distinct group or class of information, such as wetlands, wildlife habitats, crime statistics, or demographics (much like the layers of a CAD file that represent different elements of a building). The amount and type of information that can be associated with a spatial or geographic location in a GIS is virtually unlimited, and the data can be integrated with imagery and other objects, stored in databases, and distributed as interactive maps via the Internet or other electronic means.

Once as unwieldly as first-generation word processors, GIS has been considerably tamed through automated operations and Windows-like interfaces. High-end systems and complex analyses are still the domain of specialists, but third-party developers now build custom interfaces that give nontechnical users access to GIS tools for developing maps and analyzing information.

The last few years have witnessed the growing use of GIS as a tool for defining the context in which we build structures and develop cities and for understanding the effects of proposed designs on their surroundings. "If our aim is to build sustainable designs," says Patrick Moore, director of Integral GIS, in Seattle, "we need a larger view of the world. And there's no other tool in town that can give us that like GIS." Case studies illustrate these issues, as well as the role and diversity of GIS applications in urban design, planning, and other architecture-related disciplines.

Defining environmental impacts

In Los Angeles, GIS was used to conduct an environmental-justice analysis to determine whether distribution of environmental impacts from a proposed expansion of the Los Angeles International Airport (LAX) would



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Bill McGarigle writes on communications and information technology. He is based in Santa Cruz, California, and can be reached at bmcgari@cruzio.com.

fall predominately on minority and low-income communities. The study was undertaken as part of the environmental-impact statement prepared for the LAX master plan. It was conducted by PCR Services Corporation, an environmental consulting firm in Santa Monica, California.

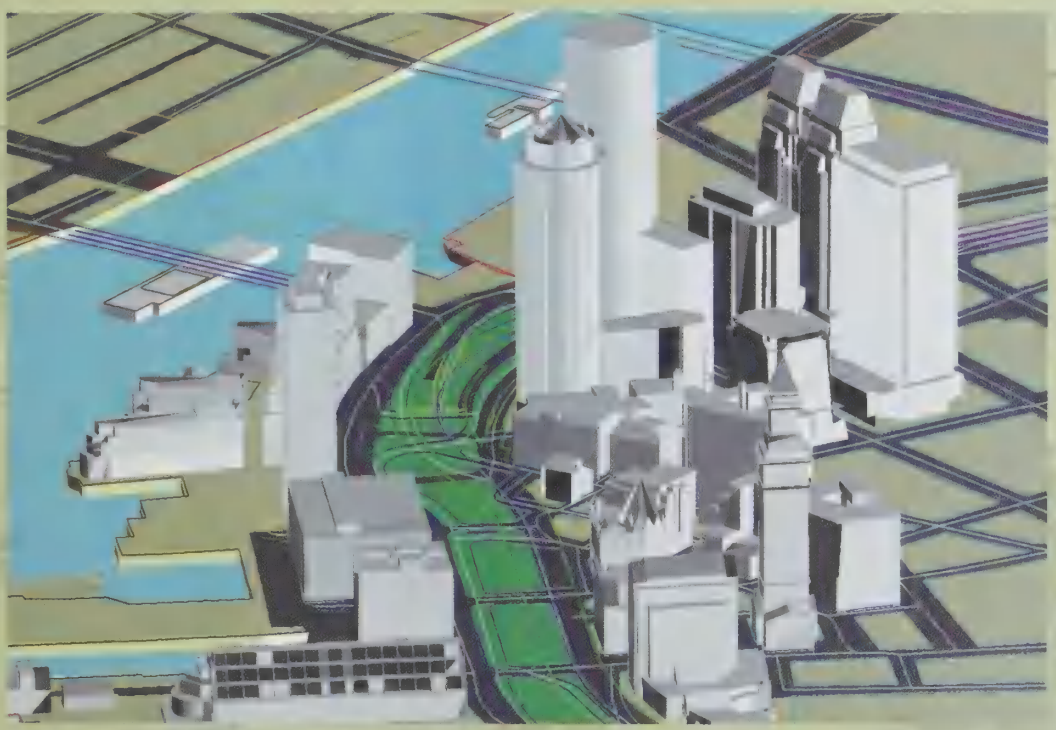
Using demographic data from the census and from federal guidelines, GIS specialists at PCR first identified the socioeconomic profiles of several communities close to LAX. Onto these they overlaid environmental-impact data in separate, thematic layers. PCR planner Paulette Wills said this data—which centered primarily on aircraft and construction noise, traffic patterns, and air quality—was gathered from other parts of the statement. "Through the overlay process," Wills explained, "we could see who the affected populations were, and in what communities [they reside]." The team also overlaid noise contours onto maps showing individual property boundaries to determine the exact numbers of households and populations that would be affected by aircraft noise.

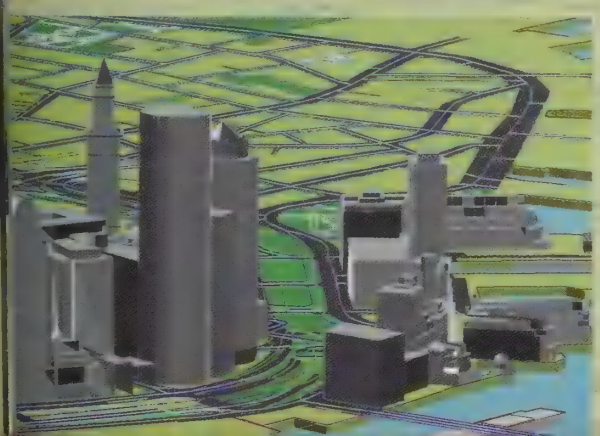
The final phase involves development of an environmental-justice program designed to mitigate or offset adverse impacts of the expansion—such as excessive noise, traffic congestion, and decreased air quality. Such a program might include increased public transportation, or installing air filters to improve indoor air quality in affected buildings. Whatever the outcome, GIS will have had a major role in defining the social and environmental contexts for the public review and administrative processes that follow, by helping decision makers analyze where to implement the various program elements.

Forecasting 3D scenarios

The redevelopment department of Glendale, Colorado (population 4,527), recently used CommunityViz, an ArcView GIS-based planning and decision-support system, to inform a communitywide master plan focusing on a series of proposed redevelopment projects. Issues such as transportation, education, land use, utilities, tax-revenue generation, and cost of services were assessed as the plan was developed, and the software was also used to model alternative building plans and land-use scenarios for review and comment.

The goal of the ongoing project is to create a "walkable" community, affordable housing, and a new retail model to increase tax revenue and provide ownership opportunities. The project is still at an early stage, but as it develops, it will involve architecture, landscape architecture, urban design, and economic analysis. Steve Mullen, a senior consultant for CommunityViz, said using GIS helped the city move beyond policy planning to create a 3D physical plan detailed enough to measure conformance of proposals with community standards for growth. According to Mullen, the system met the agency's goal by creating a framework for all new buildings and future developments. "That framework," Mullen said, "will affect design guidelines for a mixed-use downtown, building-height limits, sidewalk character, and the design of individual buildings." He added that CommunityViz was used to present a range of styles for local architecture, clearly depicting the choices that will support a consensus for final recommendations.





Big Dig, Boston

As the massive Central Artery moves underground, hundreds of acres of land in and near Boston will be freed for development. A citywide GIS would help planners, designers, and the oversight agency, the Boston Redevelopment Authority (BRA), coordinate and analyze proposals for the new areas. Researchers at Harvard's GSD are working to develop a user-friendly GIS that would include digital 3D models of the city's major features, including buildings and roads. Designers could plug their proposed plans into the system, and the BRA and other reviewers could visualize the various impacts those schemes might have on surrounding areas.

A window into time-based activities

During construction of Seattle's SAFECO Field, project scheduler Patrick Moore (then with Walter Construction) developed a GIS-based project-management system to visualize the erection sequence of the stadium in 2D and 3D layers. "By linking building elements with their associated tasks, times, and spatial coordinates, the system became a window into time-based activities, enabling everyone involved to visualize schedule-management issues, analyze the data, and make decisions from it," he said. The system was built on ArcView's GIS and combines 3D StudioViz and Primavera's scheduling engine, with a custom interface.

LEADING GIS DEVELOPERS INCLUDE ESRI, MAPINFO, AND INTERGRAPH; AUTODESK AND BENTLEY ALSO OFFER GIS TOOLS.

Using the tool, the building's construction could be viewed in both time and space. Project engineers performed simple visual assessments of which construction sequences were taking the most time; made sure that construction tasks wouldn't interfere with each other in terms of timing or availability of materials, so that conflicts could be resolved before they arose; and compared estimated to actual construction progress to determine if changes to the schedule were needed.

The evolving prototype served as a visual model for collaboration and a common basis of understanding by all project participants, Moore said, and improved communication and relationships among contractors and subcontractors. "The system gets people on the same page very quickly," Moore added. By the time the stadium was completed, it was evident that the application, referred to as the 4D Project Management System, had considerable logistic and economic value for architects as well as engineers, contractors, and project underwriters.

Moore pointed out that scheduling software like Primavera and Microsoft Project show time conflicts, not clash detection for ducts, rebars, or other physical objects. But conflicts among the work of different subcontractors can be seen easily in the 4D model. There are limitations to its level of detail, though. "The process of breaking down all the elements in CAD that can be represented spatially does not imply taking data to the level of pipe fittings—[we limited] the information to major structural elements. Otherwise, the system becomes unwieldy," he said. Following the SAFECO project, Moore established Integral GIS to further refine the use of GIS as a construction-management tool.

Defining architecture's context

No building or city is designed in a vacuum. Brian McGrath, adjunct professor of architecture at Columbia University, in New York City, and a

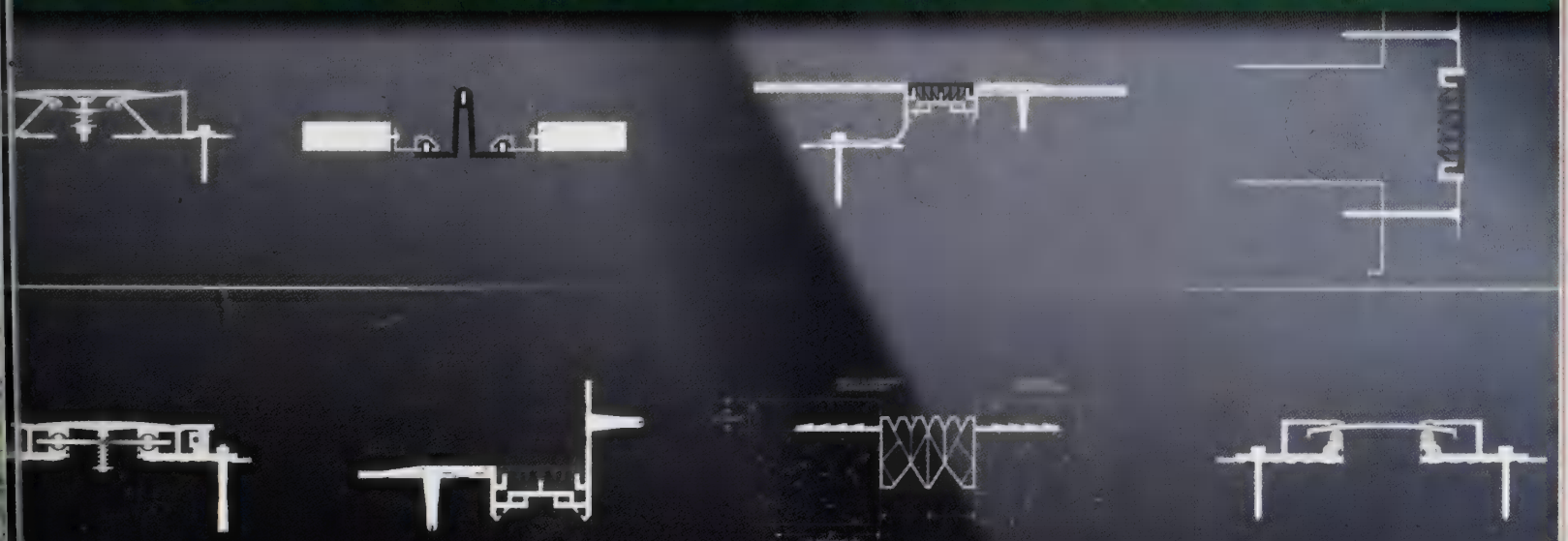


SAFECO Field, Seattle The construction managers for this project developed a special GIS-based 4D model that allowed the team to see the erection sequence of the baseball stadium over time. The system was used as a communication and collaboration tool that helped contractors coordinate the activities of subcontractors to minimize delays, conflicts, and shortages of material or labor, which reduced the need for change orders.



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founding partner of Urban Interface of New York, emphasizes that urban design is multidisciplinary by nature. "It engages sociology, geology, ecology, history—all of these are planning-based and are enriched by databases and information accessed through GIS," he says. "It is in defining the social, historical, political, and environmental context of architecture that GIS has relevance to architecture."

McGrath's views are reflected in the award-winning *Manhattan Timeformations*, an exhibition he created with his partner Mark Watkins and other collaborators for New York's Skyscraper Museum, in Lower Manhattan (www.skyscraper.org). The piece is a computer model that presents a visual history of the development of Lower Manhattan, focusing on high-rise office buildings. "The project uses GIS thinking," McGrath said, "because it's layered maps. But I used architectural and 3D software, and Mark Watkins used Flash to layer [and animate] the information. I would call it GIS technology, but it isn't literally GIS software."

GIS TOOLS CAN BE USED TO ASSESS PROJECTS AS SMALL AS INDIVIDUAL BUILDINGS AND AS LARGE AS ENTIRE CITIES.

McGrath believes most architects will eventually use GIS to access and analyze data at the beginning of a project, rather than having to create it and do multiple on-site surveys. The information is often available through a city's or state's GIS department, or architecture firms themselves can become repositories of data for locations they work in often. "The architect's role is to make that information physical and experiential," he says, "taking it out of databases and making it engage social life and the contemporary city as we try to solve environmental problems, housing problems, and educational issues connecting different communities."

Supporting research for new applications

At Harvard's Graduate School of Design, lecturer Paul Cote and his students are exploring ways to develop a common modeling infrastructure system, based on interactive CAD/GIS functions, client-server technology, advances in spatial data management, and 3D visualization. He says the project was motivated by Boston's need for a system capable of managing large quantities of digital models in 3D—one that will allow architects, planners, and reviewers to visualize how contiguous proposals for the city interrelate.

As the Big Dig project winds up, its oversight agency, the Boston Redevelopment Authority (BRA), will be faced with reviewing hundreds of planning proposals and development models from designers tackling different pieces of the project, much of it in different phases of proposal and approval. "The idea of referencing all of these models to the same



Master Plan, Glendale, Colorado
CommunityViz, which combines visualization and model-forecasting tools, was used to help this small town (which is completely surrounded by Denver) analyze proposed land-use, planning, and development schemes, like the two shown. The process included projecting potential retail-tax revenues, parking requirements, traffic implications, housing opportunities, and infrastructure requirements.

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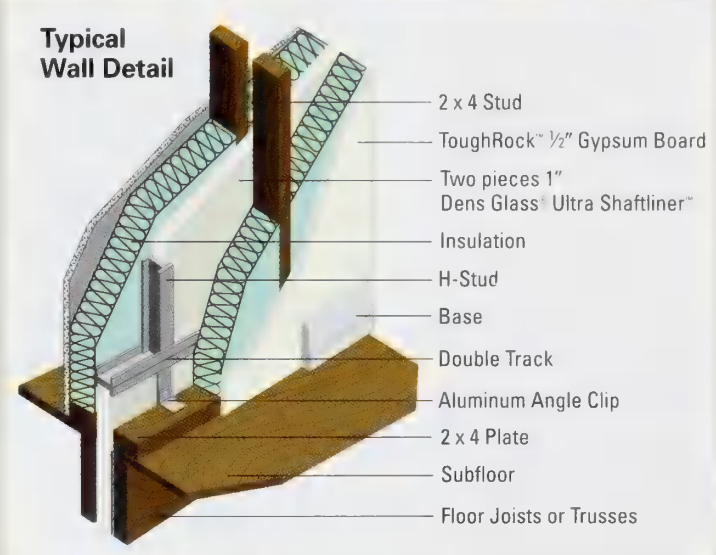
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coordinate system and making them available from [one server] offers the possibility of developing a collaborative modeling infrastructure for this gigantic, multiuser, participant design problem," says Cote.

The idea is to put all the databases in a project of virtually any size—in this case, the entire Big Dig redevelopment area—into a single, seamless layer. GIS or CAD clients will pull up their data using actual 3D coordinates. Accessing design proposals through GIS facilitates their integration with administrative data layers needed by reviewers, and tapping into a common database through CAD permits management of real 3D representations. The data would be distributed over the city's wide-area network and accessed through a user-friendly interface that does not require a high degree of technical knowledge or skill. "You've got everybody working in the same reference system, and accessing a database-driven modeling system that lets multiple users enter and delete information," Cote says.

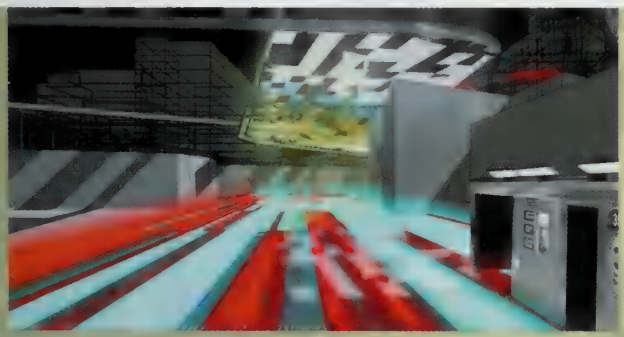
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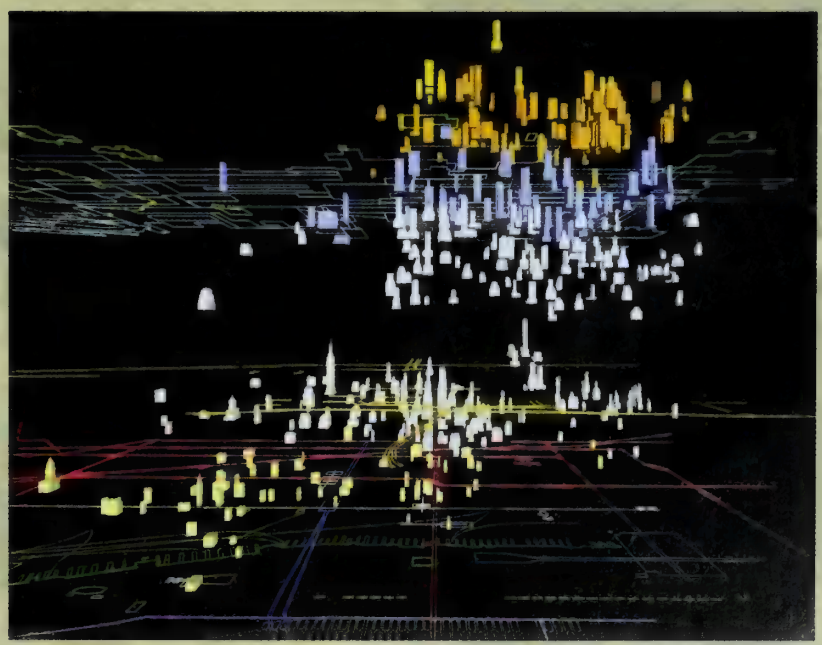
"If everyone builds on the same GIS-based coordinate framework," he continues, "their models will become part of a managed collection, all with real-world [spatial] coordinates. Design firms working on different scenarios for the Big Dig [could] download the building footprints and contours for their context area and begin the proposal process by [building] massing models to give the BRA an idea of what they are thinking about. Someone at [BRA] who wants to see what developers are considering can pull up these scenarios and see how they relate to adjacent scenarios proposed by other designers."

One of the objectives of the BRA, Cote says, is to protect the city's historic and aesthetic view corridors and to specify the massing of buildings to mask unattractive views, such as parking garages. "Examining how different regulatory parameters affect the visual quality for people on the ground or from different heights requires accurate 3D models of buildings, viewer locations, and terrain," he says. "Since GIS produces the most systematic analysis of site lines, integrating CAD data in GIS models should support this application in urban environments."

GIS has become an indispensable tool for informing the social and environmental context for urban design, planning, and architecture. Nearly every phase of the process—building design, environmental analysis, planning, civil engineering, and site development—uses GIS tools and data accessed through these systems. "There is an indelible relationship between GIS, the land-development component of civil engineering, and architecture," said Andrew Ramm, senior GIS product manager for Autodesk. "A building can be designed, but at the end of the day, it can't be built unless GIS work has been done beforehand to prepare for that building to exist." Throughout the design and construction process, the GIS-based context serves as a platform for collaboration among all project participants and provides source data that both informs and is shaped by them.

As these case studies illustrate, GIS works at scales as vast as cities and as small as individual buildings—and can also function as a platform for the development of architecture-related applications, such as the 4D Project Management System pioneered by Moore. By "three-dimensionalizing" social and environmental impacts of proposed planning scenarios, it helps visually oriented thinkers like architects recognize patterns and resolve conflicts. As McGrath pointed out, GIS not only informs the social and environmental context for urban design, planning, and architecture—it helps us visualize how we can inhabit space and the planet more intelligently. ■





New York Visions
Brian McGrath and Mark Watkins of Urban Interface used GIS-like thinking to develop *Manhattan Timeformations* (right), a digital interactive exhibition that presents a 3D history of the rise of tall buildings in Lower Manhattan, linked to other urban information such as geologic formations, zoning laws, and real estate cycles (see the show online at www.skyscraper.org). A proposal for a new Queens Plaza transportation hub (above), by McGrath and José Luis Echeverria, calls for ■ plaza where a GIS-based map would be projected.

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Looking at display devices

By Tomas Hernandez, Jr.

Some readers may remember connecting their $1,000 Apple II+ to the family color television set because the price of Apple's color monitors was out of sight. Today, you can buy a 17-inch monitor that's faster and sharper than that one was, and whose display is visible under the worst lighting conditions, for less than $300. You can also choose from a wide array of display devices: CRTs, flat-panel LCDs, or pressure-sensitive tablets that let you draw on-screen. But, how do you decide which monitor is right for you?

Not just for CAD

AEC professionals who use CAD and image-and-text-based programs need high-resolution monitors that present clean, crisp lines, line weights, and types. They also need to clearly display solid and gradated colors, deep uniform blacks, and clean, white backgrounds. They require 24-bit photo-quality resolution that can be calibrated to match color printing. But the need for these tools is no longer limited to the CAD user; it extends to the designer who reviews and prepares presentations and marketing materials. The typical designer spends an average of eight hours a day viewing a display, making it the single most important piece of hardware used in the trade. A bad display device can be the kiss of death to a designer trying to produce high-quality presentations.

Tomas Hernandez, Jr., is a technology consultant in New York City. He can be reached at thj@panix.com.

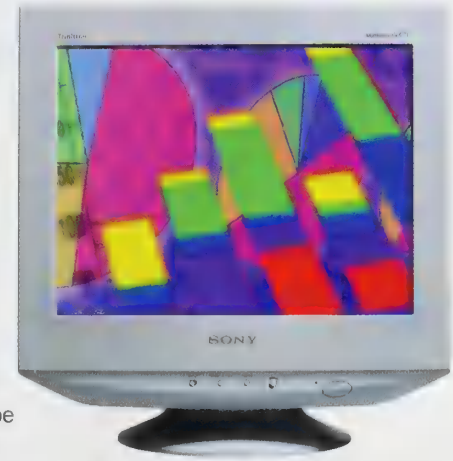
www For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **architecturalrecord.com**.

Most firms buy monitors as part of preconfigured workstation packages from manufacturers such as Dell, Gateway, HP, and Compaq. These suppliers offer larger, higher-quality monitors as upgrade options, or they can be purchased from third parties. Although most monitors have multiple pages of specs that describe their capabilities, there are only a few key features to keep in mind when looking for a monitor.

Size is the first criterion. A 17-inch monitor is the minimum size one should consider for design work, but a high-quality 19-inch screen will give more bang for the buck. It has 30 percent more display area and typically costs less than $500. The most demanding design professionals may need 20- or 21-inch monitors, which cost a little under $1,000. Units this size tend to be very deep, bulky, and extremely heavy. There are even units as large as 24 inches. Sony's 24-inch CRT monitor, the GDM-FW900, goes for under $2,000 and offers a 22½-inch viewable area.

Resolution and refresh rate

Two numbers you'll need to know when buying a monitor are the resolution and the refresh rate. Resolution is the number of pixels spread across the display in the horizontal and vertical directions. The higher the resolution, the more detailed and crisp the information



Sony's 19-inch Trinitron CRT display, popular for general office work.

shown on screen. The refresh rate—a concern only for CRTs—is the number of times the screen is redrawn each second. Higher refresh rates mean less flicker on the screen, which translates into less eyestrain. It is possible to live with a refresh rate of 75 Hertz (Hz) for a 17-inch monitor with a resolution of 1,024 by 768 pixels, but for monitors 19 inches and larger, with a resolution of 1,280 by 1,024 or greater, a minimum of 85 Hz is recommended. Some graphics cards can push resolution even higher, but the improvement probably won't be noticeable.

Dot pitch is the physical distance between phosphors on displays. The smaller the dot pitch, the sharper an image will be rendered on-screen. For designers viewing very thin lines and crisp, 24-bit photography, a dot pitch of 0.25 mm or less should be the bare minimum. Dot pitch is measured slightly differently on wide-body CRTs, flat-screen LCDs, and other display types, so check specs for comparative units of measure.

The newest monitors offer convenient additional ports for devices such as handheld organizers. They also offer speaker and microphone jacks. Some even offer additional jacks to connect more than one computer to a single monitor. Front-panel screen controls for brightness, contrast, and other settings also improve ease of use.

Enter the flat panels

Just a few years ago, a debate over the advantages of a standard wide-body CRT versus those of a

NEC MultiSync LCD 2010, a flat-panel display.



Digital Architect

flat-screen LCD would have been a short one. The selection of flat-panel displays was limited, the technology was shaky, and the prices prohibitive. Today, the flat-panel display's main attributes are that it uses significantly less desktop space than a traditional CRT monitor and offers lower power consumption. An LCD can be mounted on a backboard to free an entire work surface. Like CRTs, many LCD displays offer USB ports for printers, scanners, and other peripherals.

Prices on flat-panel displays continue to drop. A 17-inch LCD can be purchased for as little as $800, while top-of-the-line, 20-inch units can go for as much as $5,000. An average-priced high-quality choice is ViewSonic's 19-inch Viewpanel VG 191, which lists for under $1,200. It comes with proprietary PerfectPortrait software, which lets you change the display to portrait mode, reducing the need to scroll through Web pages or desktop-published documents. Along with a sturdy base, a wall-mount kit and optional USB hub are available.

Dell Computer's 20-inch 2000FP unit sells for $1,599 and offers the the same viewing area as a 21-inch CRT display. Other features include picture-in-picture capability and analog, digital, S-video, and composite inputs. The latter two inputs allow for direct DVD and VCR inputs.

Display Devices: The Main Points

What to look for

- Will you be using the computer primarily for general office productivity, desktop publishing, CAD, or rendering and high-end animation?
- Are the desks in your office small? Is saving space on desktops a high priority?
- How many peripheral devices, such as handheld organizers or scanners, will be connected to the computer?
- Does your firm pay for electricity consumption? Are you trying to reduce your overhead costs?

What to buy

A 19-inch monitor should be the minimum display size considered for design work. Smaller screen sizes mean lots of wasted time scrolling through files.

For traditional CRTs, pick one with a refresh rate of at least 85 Hertz. Anything lower will cause excessive eyestrain due to the monitor's flickering.

Choose a flat-panel display if you wish to save desk space and/or energy. Flat panels can sometimes be wall-mounted to eliminate their desktop presence entirely. They also consume only a third of the energy of CRTs, according to the Environmental Protection Agency.

Make sure your graphics-adapter card is up to speed. Check with vendors to see what suitable high-quality video card will work for the monitor's quality and use.

Consider purchasing pressure-sensitive LCDs in the future. Architects are quickly taking to using a stylus for computer input rather than a keyboard and mouse. New software on the market and under development will allow designers to sketch easily right on their screens, just as they do on paper.



Apple's Cinema Display has a wide aspect ratio for working with graphics.

Top-of-the-line choices include NEC's MultiSync 21-inch LCD 2110 flat-panel monitor, which comes in at $3,799. Like the ViewSonic, this unit comes with drivers and panel-rotation software to switch the display to vertical/portrait mode. Samsung's SyncMaster 240T comes in at a list price of $4,700.

Apple-brand buyers pay a little more, as usual, with one exception. The list price for Apple's 15-inch LCD is just under $600; their 17-inch is just under $1,000. The big surprise is that Apple's 22-inch Cinema Display model is going for a bit less than $2,500. Apple says that it is twice as bright and has twice the sharpness and three times the brightness of an ordinary display. It allows you to see two 8½-by-11-inch pages side by side at full size, making it a natural choice for desktop publishing.

FLAT-PANEL DISPLAYS CONSUME LESS DESKTOP SPACE AND LESS ENERGY, AND THEIR PRICES ARE DROPPING FAST.

Caveat emptor

Prices for flat-panel displays will continue to drop as demand increases. Reviews for current offerings can be found on the Web, but one piece of advice given consistently is that you should see your dream LCD with your own eyes before you buy it—only then can you judge whether you like the screen's appearance. While the space and power savings of the LCD are advantageous, CRTs still offer value, high quality, and proven technology.

If you're remodeling or building a new office and are really ready to spend some money, you may want to look into some of the wireless LCD displays. ViewSonic's Airpanel series has just come on the market, and others will soon follow.

When you're preparing to make financial arrangements to acquire new workstations through financing or leasing, look at the net monthly difference between getting CRTs or LCDs. You may find that, on this basis, the price differential between the two is insignificant, particularly if the energy savings offered by LCDs is factored in.

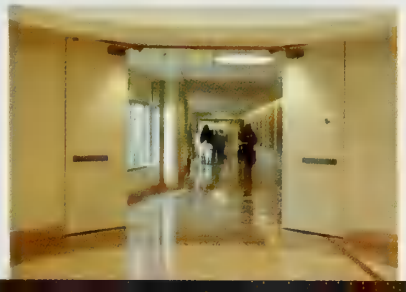
To make the most of your new display, it must be matched with the right graphics-adapter card. For CAD, photo imaging, and Web surfing, most of the high-quality video adapters from 3dlabs, ATI, and nVidia with 32 megabites of memory will do the job just fine for under $250. For high-end video editing, animation, or rendering, look for specialty cards tailored to that work. Check your software documentation



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for recommendations on which graphics-adapter cards work best. If you are considering attaching two monitors to a system, there are graphics cards for that purpose. Manufacturers' Web sites usually have the latest driver upgrades and troubleshooting software. If your software needs support for OpenGL or Microsoft Direct3d, make sure your card supports it.

Pressure-sensitive tablets

As LCDs become part of the mainstream, a new type of display is emerging that combines LCD display technology with a pressure-sensitive tablet in one unit. Wacom's Cintiq interactive-pen displays combine the best of both worlds into what may mark the beginning of an interactive design tool. You can use a stylus directly on the Cintiq's screen as a drawing device, much like using a stylus on a Palm or PC-compatible handheld organizer. The Cintiq is a popular choice among architects who are using Autodesk's new Architectural Studio software [RECORD, March 2002, page 177], a tool for early-stage design documentation that can combine electronically produced hand sketches with photos and hardline CAD drawings. While these devices are a great improvement over the first digitizing tablets, which required that you watch the line you were drawing on the monitor instead of the pen, they are still a long way from simulating the look, texture, and feel of a soft graphite pencil rubbing off onto a sheet of yellow tracing paper. Fujitsu, IBM, and Polyvision are also marketing devices that enable the user to do screen-based input and image manipulation. These devices will work with any Windows- or Mac-based computer, and you can also use a standard keyboard and mouse when you need them. As more software applications allow users to input their drawings on-screen, these devices will likely be found as standard software.

Additional features include cordless, pressure-sensitive pens, 360-degree rotating stands, interfaces for both analog and digital systems, USB and serial connections, and the ICC color-management system built-in.

Wacom Cintiq displays come in two sizes. The Cintiq 15x, with a screen size of 15 inches, offers a maximum resolution of 1,024 by 768 pixels for around $1,900, while its new 18-inch counterpart offers a maximum resolution of 1,280 by 1,024 at a little less than $3,500. As time goes by, prices will drop.



ViewSonic's wireless Airpanel 100.

The bottom line

At today's prices, a design professional should have a 19-inch or larger CRT monitor on his or her desk—their quality, reliability, and resolution are high, and prices are reasonable. The most costly CRTs tend to offer better quality than their flat-screen brethren. Of course, if desktop space is the issue, you should consider buying an LCD if you can afford one. Prices will continue to drop and their technology continues to improve, so these former barriers won't be a problem in the future. As more pressure-sensitive displays move from the labs into the mainstream, and as more software is released that allows for on-screen input, these interactive, haptic devices will become as commonplace as the CRT is today—particularly for design professionals, who often prefer drawing directly on a surface instead of using a keyboard and mouse.



Wacom's Cintiq pressure-sensitive LCD is quickly becoming popular.

AS PRICES DROP, A WORKSTATION COULD HAVE AS MANY AS THREE OR FOUR HIGH-RESOLUTION LCD SCREENS.

The future will bring us even larger displays. Architects who have been accustomed to relatively small monitors, which require constant zooming and panning so they can work on the small details of large buildings projects, will be able to see their work on huge screens. Considering the size of typical drawings or rendering and the time it takes to manipulate through a CAD file, the need for this larger screen doesn't seem all that unreasonable. As the price of displays continues to drop, conference rooms and common pinup areas will also be benefactors of large flat-screen technology. Researchers at the Palo Alto Research Center (formerly Xerox PARC) have been developing something called "focus-plus-context screens," devices that impose a low-resolution, rear-screen-projected image over a high-resolution image produced by a flat-panel monitor. These devices will allow users to see one area of an image in detail, while still allowing them to view it in its overall context. Users say these new screens let them work much more quickly, compared to having to toggle between a large image and its blown-up details.



Palo Alto Research Center's new display lets you see both up close and in context.

This technology experimentation could one day be of great benefit to the design profession. Wouldn't a 36-by-48-inch display look great on your desk? ■

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INTERIORS

A pressroom, assembly plant, and hayloft: old spaces revamped as inviting offices

Media professionals build interactive Web sites where printer's ink once flowed. Marketers promote magazines by phone in the footprint of assembly lines that turned out farm tools a generation ago. And meteorologists disseminate data about weather trends via desktop computers from a wood-framed perch in a former 200-year-old barn. As the styles and functions of work in the 21st century continue to change, so do the forms required of today's office interiors. This month, a portfolio of three new offices illustrates the finesse and ingenuity with which architects are adapting existing interior spaces for new uses.

In Chicago, the landmark Tribune Tower has yielded more versatility than its Gothic Revival facade might augur. The skyscraper's subterranean levels once housed massive printing presses, then the cornerstone of the company's newspaper empire. When printing operations were transferred off-site 20 years ago, the hemmed-in manufacturing floors seemed unsuitable for occupancy by media staff. Architects Perkins & Will, collaborating with The McClier Corporation, liberated the interior plan from its horizontal thrust. Through deft engineering, an open-plan office complex with an atriumlike ambience now operates as an interconnected web of new-media workers.

Preservationists in Boston, were wary of the conversion of a landmark Beacon Hill carriage house into an office for the American Meteorological Society. While respecting the integrity of the historic shell, Anmahian Winton Architects has sidestepped stylistic historicism to construct a thoroughly modern interior whose every surface displays finely detailed craftsmanship.

Farther afield, in Vermillion, South Dakota, the architectural envelope seemed almost beside the point. Unremarkable yet economically viable, the concrete-block shed was a container in which Randy Brown Architects could build a series of curving office enclosures and subvert the modern open-plan grid.

All three projects retain pieces of their past lives: tracks for rolling newsprint in Chicago, the patina of barn doors in Boston, and assembly-line hoists in Vermillion. Employees and visitors connect to the work at hand, while sensing the imprint of history and time. The architecture adapts, rather than erases. *William Weathersby, Jr.*



The lower floors of the Chicago Tribune Tower were renovated to house an Internet division. Sandblasted-glass panels enclosing the café allow shadowy profiles of occupants to be seen from the adjacent reception area.

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213 **Interior products**



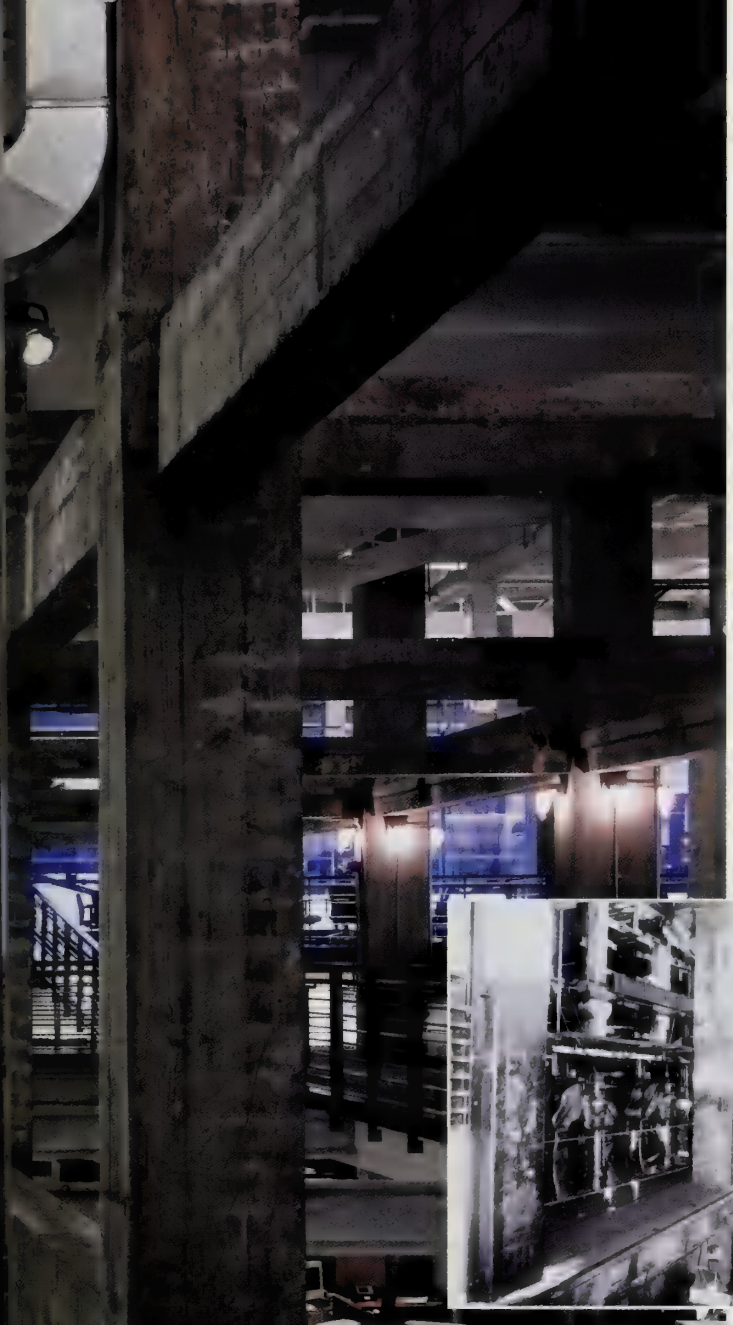
Perkins & Will liberates an outmoded pressroom for **Tribune Interactive**

By Rosemarie Buchanan

With its gargoyles, Gothic filigree, and flying buttresses, the 1922 Chicago Tribune Tower is an urban landmark that has come to symbolize the acclaimed newspaper and the city itself. Deep within the bowels of this most iconic of 20th-century skyscrapers, an ingenious adaptive-use renovation recently bridged the chasm between the old-school print world and the digital age. Where behemoth printing presses once spun one-ton rolls of newsprint throughout the night, employees of Tribune Interactive, the company's Internet division, now create and manage Web content within a Modernist landscape of steel and glass. Architect Perkins & Will has carved light-filled loft spaces from subterranean manufacturing floors, transforming a graveyard of industrial production into a new-economy workplace incised on the cutting edge.

Designed by John Mead Howells and Raymond Hood, the Tribune Tower was born of the seminal architectural competition held to design the newspaper's headquarters upon its 75th anniversary. While the range and sophistication of entries that did not win is legendary—among them submissions by Walter Gropius, Adolf Loos, and Eliel Saarinen—the tower itself has sometimes been derided for carrying the gothicizing of the skyscraper to an extreme. The 34-story building continues to house the editorial staff of the flagship newspaper on upper floors, but the printing operation was relocated to an off-site plant in 1982. Stripped of its presses, the 93,000-square-foot catacomb held only orphaned archives for years.

In 1999, the Tribune Company decided to convert the abandoned facility into a "digital pressroom" for its consolidated new-media divisions. At the time, Tribune Interactive's 200 employees were scattered



The structural columns of the 1922 Chicago Tribune Tower were left exposed in the original basement-level pressrooms (inset). The heavy concrete framework is now juxtaposed with towers of glass in the Interactive office.

PHOTOGRAPHY: © ROBERT SHIMER/HEDRICH BLESSING

Rosemarie Buchanan is a Chicago-based freelance writer and editor. She frequently writes about architecture and interior design.

Project: *Tribune Interactive, Chicago*
Architect: *Perkins & Will—Ralph Johnson, AIA, James Prendergast, AIA, principals; Frank Pettinati, AIA, project manager; William Berger, project architect; JasonRosenblatt, architect*
Architect/engineer (shell and core): *The McClier Corporation—Deborah Hill, vice president/interiors; Gary Stern, project architect; Bernardo Remo, Ronnie Mendez, Bob Dahlman, William Bowman, Phil Spagnolo, Riz Nicolas, project team*
Electrical engineer: *Tom Byrne & Associates—Tom Byrne, principal*
Code consultant: *Rolf Jensen & Associates—Les Strull*
General contractor: *Pepper Construction*



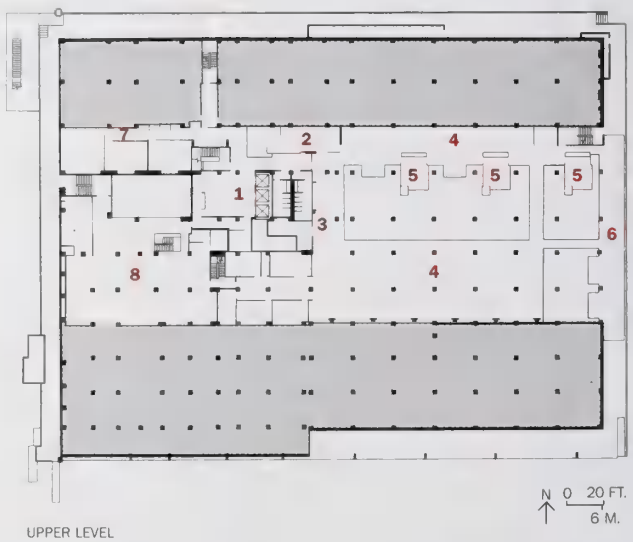
Fronted by cantilevered balconies, the glass-enclosed conference rooms are stacked in towers surrounded by open-plan offices (left). A street-level loading dock was replaced with a two-story bank of windows to infuse the below-grade floors with daylight.

among nine floors of the tower. Anxious to attract and retain a talented workforce in the competitive market, Tribune management charged the architects with designing a space that would be a dot-com showplace. The $22 million project also encompassed adding a new entry to the lower floors, and designing adjacent fitness and conference/training facilities.

Employees and guests reach the Interactive enclave from a street-level lobby next to the tower's main entrance, descending by either an elevator or the new staircase. Travertine panels, inscribed with a quote from Albert Camus about freedom of the press, were relocated to envelop the stairwell. At the base of the stairs, the wall treatment shifts from travertine to painted surfaces, cuing the transition to a less formal space. Preserved beneath a layer of epoxy on the floor, steel rails that once transported rolls of newsprint from a loading dock now serve as wayfinding "tracks" and a pentimento of the past.

Working within the framework of structural concrete columns, the architects have opened the floorplates to create a series of three-story-high glass towers punctuating a 32-foot-high main corridor dubbed "Main Street." Asymmetrically arranged on three levels, the surrounding open-plan workspaces accommodate 280 employees.

Acid-washed concrete columns and floors contrast with the lightness of the triple-stacked, glass-enclosed conference rooms, which



UPPER LEVEL

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2. *Café*
3. *Waiting area*
4. *Open-plan offices*
5. *Conference room*
6. *Greenhouse*
7. *Conference center*
8. *Fitness center*



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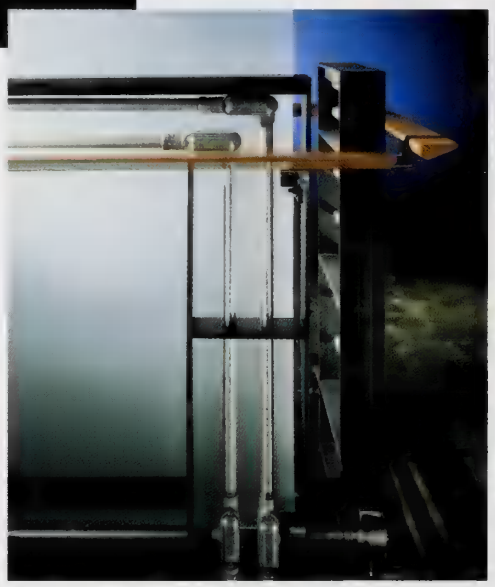
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Bright orange lounge chairs set upon black square insets in the carpet designate areas for conversing within the cavernous space (above left). Framed glass wall panels in the café (above right) recall the glass panels of the conference-room towers. Aesthetics wed to infrastructure is expressed in the railing (detail, left), whose components house phone and computer fiberoptic conduits.

each feature a balcony that can be accessed for private cell-phone conversations. Suspended in front of the conference rooms, a canted wall of frosted-glass panels also functions as a projection screen.

"The glass is a metaphor for the egalitarian nature of new-economy business," says Jim Prendergast, AIA, Perkins & Will project director. "Enclosed spaces within the glass towers were purposefully designated as conference rooms. There are no individual offices or ivory towers."

A two-story bank of windows replaced the former pressroom loading dock to wash the lower levels with daylight. The glass walls of the conference room towers transmit this light, while extensive electric lighting overcomes the feeling of working below grade.

THE PRINTING PRESSES TELEGRAPHED THE ORIGINAL FUNCTION OF THE SPACE; TODAY'S DATA CONDUITS ARE MASKED.

The old printing presses made the function of this space obvious by their sheer size and noise. Now the technical infrastructure is hidden. Phone and data fiberoptics are [illegible] into balcony railings, while whiteboards for writing notes mask [illegible]. Employees can connect their phones to any jack and still have [illegible] to their own extension.

Besides providing a functional environment for Internet employees, the space has a [illegible] powers-that-be down from the top of the tower: The Tribune C[illegible] board now meets in the basement. ■

Sources:
Acoustic ceiling: *USG*
Glass: *Pilkington; Cesar; Viracon*
Carpet: *Collins & Aikman; Monterey; Constantine*
Workstations, task chairs, conference tables: *Herman Miller*
Conference chairs: *Vitra*
Lounge chairs: *Kielhauer; Knoll*
Lighting: *Electronic Theater Controls; Focal Point; Juno; Louis Poulsen*

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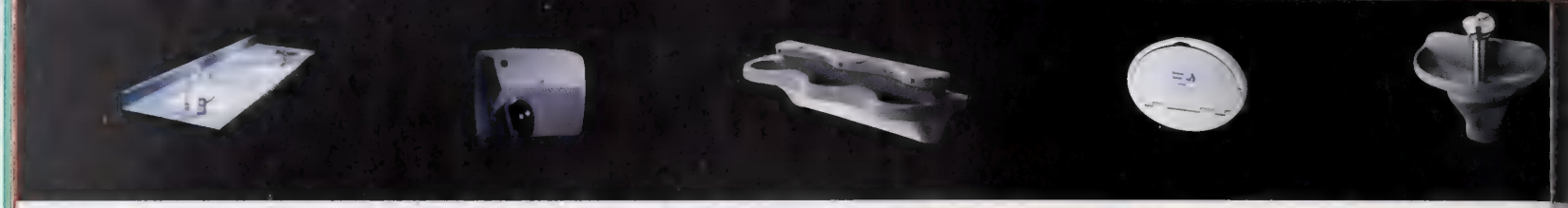
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Like a ship in a bottle, Anmahian Winton's **AMS** interior is crafted of detailed forms inside a Beacon Hill barn

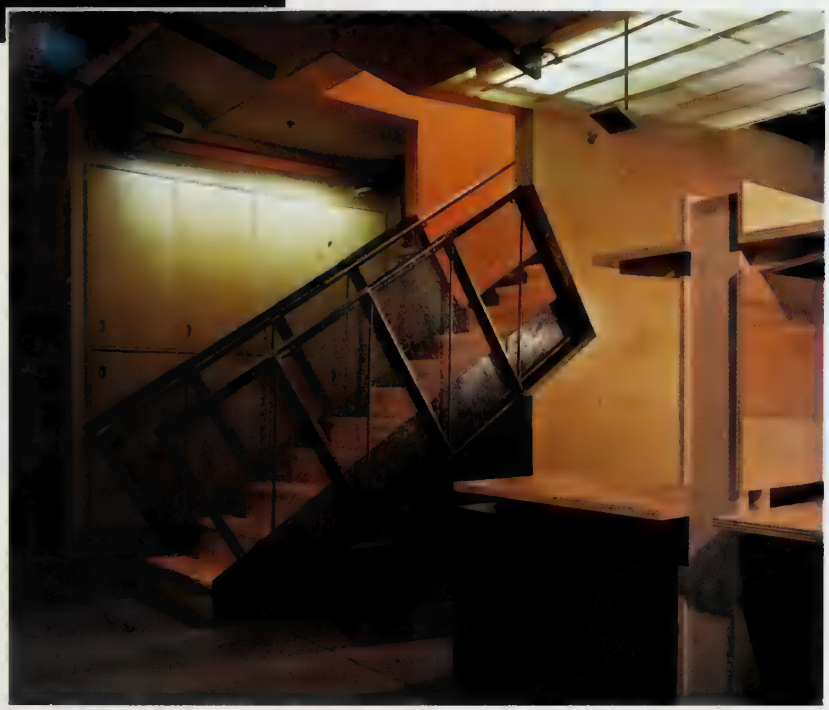
By Deborah Snoonian, P.E.



Boston is a city steeped in architectural tradition, where preservation of the provincial overrides advancement of the modern. The successful adaptation of a venerable Beacon Hill barn as a compact office proves that two points of view can coexist beautifully. With a healthy respect for the centuries-old brick shell, Anmahian Winton Architects has inserted dynamic interior forms as precise and finely detailed as a handcrafted cabinet. Engineering dexterity and the exploration of spare materials transcend period-piece predictability.

The American Meteorological Society (AMS), which commissioned the renovation, was founded in 1919 to develop and disseminate information relating to the atmospheric sciences. Since 1958, the society has been headquartered at 45 Beacon Street, a stone's throw from the State House and the Boston Common. Its 1806 Georgian-style mansion, designed by Charles Bulfinch for Boston's third mayor, Harrison Gray Otis, includes a carriage house in the rear, one of the few surviving Bulfinch barns in the neighborhood. The barn was used for storage and staff meetings until AMS decided to adapt it as new offices for 13 editors who had been producing journals from cramped quarters in the mansion. Anmahian Winton Architects of Cambridge was enlisted to reinvent the barn.

Although they are no longer operable, the reconstructed carriage entry doors (above) insulate a major portion of the south wall. The height and detailing of the steel railings (right) recall the barn's former horse stalls.



The program was simple, yet the challenges formidable: to ensure that the editors would have enough space within the footprint; improve the building's insulation and HVAC; and "imbue the space with an authenticity relevant to its time that complements the direct architectural language of the barn's making and use," says architect Alex Anmahian, AIA.

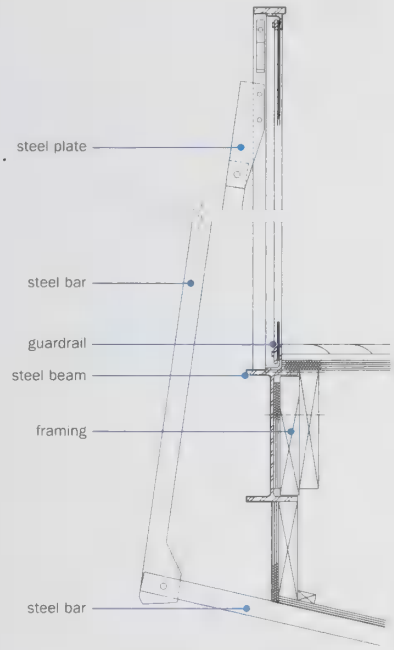
The structure is a brawny, utilitarian rectangle of brick walls topped by a timber roof supported by thick square beams and rafters. The shell was not altered, save for adding perimeter steel beams for lateral stability, insulating the roof to preserve the heavy timber, and removing horse stalls that the architects tried to keep but ultimately couldn't. The original doors for the carriage entry were in disrepair, so the firm had them rebuilt to original dimensions using 200-year-old wood salvaged from the hayloft structure. Now a striking detail in the south wall, the inoperable doors were insulated to lower HVAC requirements.

A new mezzanine echoes the original hayloft, which was dismantled in 1966. Tucked snugly beneath the wooden rafters, it hovers over the main floor. The platform is supported by steel beams that appear to skewer it, placed where original wood beams once rested. Its single-loaded circulation corridor is located along the barn's center axis, connecting the objectlike volume to the larger space. The mezzanine also provides indirect lighting and a sense of enclosure to the main level.

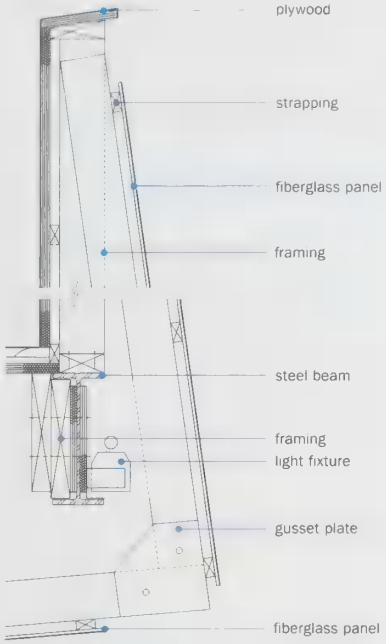
The first floor is an integral-pigment concrete slab in a warm brown hue that recalls the dirt floor of yore. Subterranean ducts, a radiant slab, and high-velocity air for the mezzanine were used to save space. Ductwork is concealed in closets and cabinetry near the mezzanine stair.

Project: *American Meteorological Society, Boston*
Architect: *Anmahian Winton Architects—Alex Anmahian, Nick Winton, partners in charge; Rachel Herwaldt, Aaron Stavert, project team; Munira Fleyfel, model builder*
Engineer: *Gregorian Engineers (structural)*
Consultants: *Cavanaugh Tocci Associates (acoustical); Lam Partners (lighting); Atlantic Heating and Air Conditioning (HVAC); Ben Steverman Electric (electrical)*
General contractor: *M.F. Reynolds*


EXIT



DETAIL AT MEZZANINE NORTH, LOOKING EAST



DETAIL AT MEZZANINE SOUTH, LOOKING EAST

Seen from the first floor, the loft (above in photo opposite) is a cozy hideaway among the old wooden rafters. Its railing is held in place by simple, graceful steel brackets (detail drawings above). Lights affixed to the underside of the mezzanine (right), diffused by fiberglass panels, cast a warm glow on the custom-built desks below.





The mezzanine (above) adds nearly 500 square feet of floor space. Steel beams shore up the brick walls, which were 5 inches off square. Custom furnishings (above and below) are crafted to create a handsome interior of balanced proportions.



Shoehorning ready-made furniture into the barn would have violated the proportions and character of the shell, Anmahian says. Instead, the client allowed the firm to design custom workstations, bookshelves, cabinetry, and metalwork—once the team proved it was cost-competitive with the use of commercial products. Textural, off-the-shelf materials—maple veneer plywood, steel, and fiberglass—provide a lively contrast to the barn's rough-hewn surfaces.

Anmahian is a self-admitted "details guy," and the success of this restoration, like building a ship in a bottle, relies on both a masterful execution of the program and close attention to its particulars. The detailing and craftsmanship are uncomplicated and outstanding throughout: the rough/shiny patina of the mill-finished handrails, the perfectly honed angles of the wood desks, and the exposed connections in which every bolt is sheared to the same exact length. "We wanted to achieve a refined rusticity, using a contemporary language in materials and assembly," Anmahian says.

Preservationists were concerned that renovating the carriage house would destroy its character. Instead, a graceful, muscular interior amplifies the presence of this stately structure, a happy marriage of seeming opposites. And for the client, it's a magnificent place to sit and think about the weather. ■

Sources

Doors, cabinetry, woodwork, furniture fabrication: *Freeman Carder Corporation*

Hardware: *Schlage; Stanley; Ackles Steel & Iron*

Concrete floor slab: *L.M. Scofield*

Fiberglass panels: *American Acrylic*

Lighting: *Artemide; Belfer; Birchwood; Elliptipar*

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Backlit panels and curving walls awash with color form a new interior office landscape for college-age telemarketers within the austere shell of the former assembly plant.

Randy Brown reinvents a tool-manufacturing plant to engage young employees at **Quality Telemarketing**

By William Weathersby, Jr.

The word *telemarketing* may bring to mind the aggravations of inconvenient phone calls, interrupted dinners, unsolicited chattiness, and all the accrued minutes of your life you'll never get back. But take a moment to consider the employees toiling on the other end of the line. Performing repetitive tasks and bracing against frequent rejection, telemarketers often work in spartan spaces lacking any amenities. Translation: thankless job.

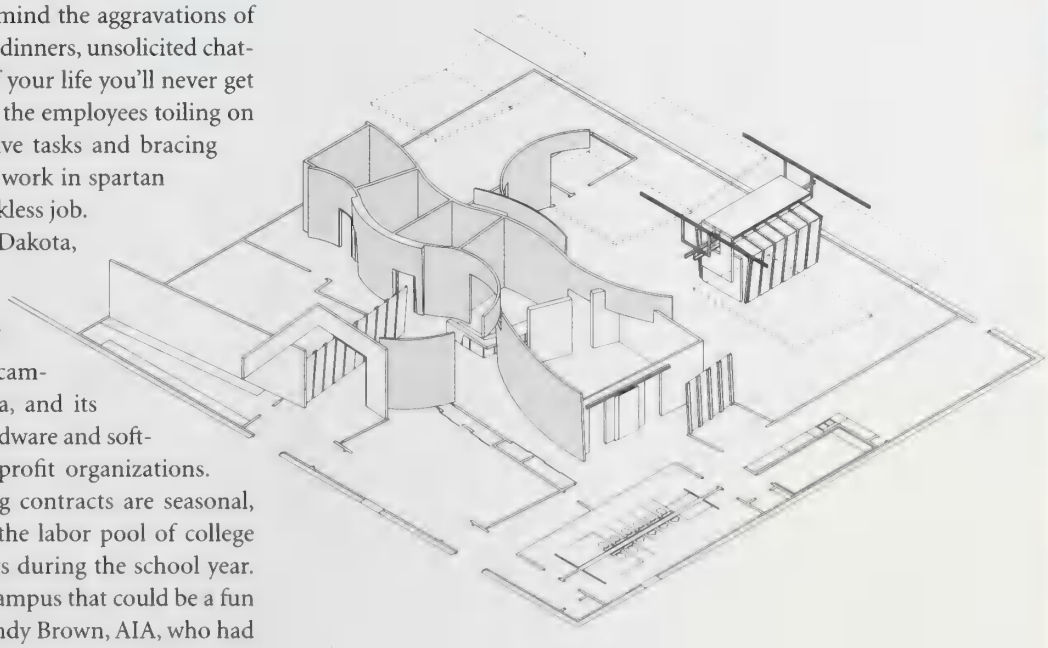
At a new office in Vermillion, South Dakota, Quality Telemarketing (QT) president Mike Albers sought an environment that would attract and stimulate a part-time workforce of students from the University of South Dakota campus nearby. QT is based in Omaha, Nebraska, and its clients include publishing houses, computer hardware and software resellers, and fund-raising arms of nonprofit organizations. Because many of the company's telemarketing contracts are seasonal, Albers opened this satellite office to tap into the labor pool of college students who could work shifts of 2 to 4 hours during the school year.

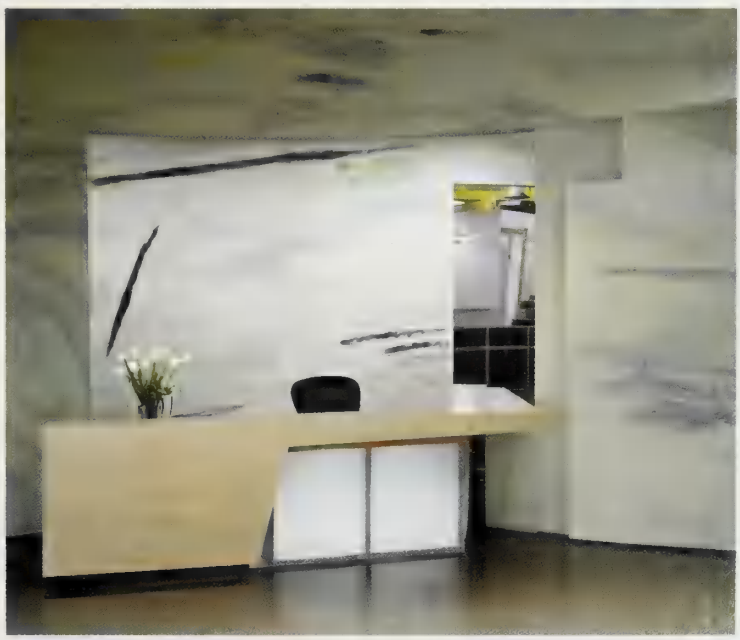
"The client wanted an office close to campus that could be a fun place to work," says Omaha-based architect Randy Brown, AIA, who had previously designed other offices for QT. "The goal was to create a dynamic spatial landscape of forms and experiences that would relieve the monotony of working the phones. The space also needed to be flexible to accommodate the fluctuations in staffing."

Working within a modest budget, the design team adapted a former tool-assembly plant as the new telemarketing center. The 10,000-square-foot shed, constructed of concrete blocks topped with a steel roof, had sat vacant in an industrial part of town but was only a five-minute walk from campus. Its concrete floors, exposed roof joists, assembly-line hoists, and other industrial remnants were retained as part of the new office design. "We left most of the original shell exposed, concentrating the budget on interior architectural elements," Brown says.

Managers and administrative staff are housed within enclosed offices grouped inside a curving monolithic form at the plan's center. The central structure sits between the conference rooms and operator cubicles at the rear of the space and the entry lobby in front.

Employing a palette of basic materials, such as drywall, two-by-four studs, and polycarbonate panels, the architects created a serpentine





Managers' offices are enclosed within a curving central form that separates the main work spaces from the training rooms and lobby (above). Fine arts professor Jeff Freeman painted the walls (below).

Contributing editor William Weathersby, Jr., is a writer based in Westport, Conn. He edits the quarterly Lighting and Interiors sections for RECORD.

Project: *Quality Telemarketing, Vermillion, South Dakota*
Client: *Mike Albers*
Architect: *Randy Brown Architects—Randy Brown, AIA, principal; Steve Mielke, Matt Stoffel, Nate Gieselman, Kate Saroka, Katy Atherton, project team*
Contractor: *Wuerfl Company*



Remnants of the tool-manufacturing process, such as the yellow ceiling tracks and hoists, were incorporated into the new office design (right). Fluorescent pendants, once used to downlight the assembly line, were retained but rehung upside down to provide ambient uplight above the work cubicles for phone operators (right and below).



pathway of enclosures. Forming few right angles, the walls shift and turn, pierced by apertures to allow glimpses into adjoining spaces.

Brown commissioned University of South Dakota fine arts professor Jeff Freeman to paint the walls with abstract washes of color, enhancing the central structure as a focal point and sculptural presence. An asymmetrical reception desk, constructed of maple and backlit polycarbonate panels, anchors the enclosed office sector. Concrete floors pave circulation routes, with carpet absorbing sound in private offices and the telemarketing areas.

To keep staffers from feeling like part of a skeleton crew when phone stations are not occupied to capacity, the open-plan telemarketers' cubicles were divided into three sectors separated by conference rooms. During the heavy-traffic season from August to December, 84 phone operators can command all three sections. From January through April, two flanks of cubicles on either side of the main conference room hold 60 workers. In the summer, 30 employees are concentrated in one cubicle section closest to the main conference room.

Operators work within low-profile modular units upholstered with blue and purple fabric. Overhead, three canted ceiling panels of acoustical-tile were suspended with aircraft cable to deflect noise and to create a more intimate scale. Reworking the existing lighting fixtures, Brown rehung the fluorescent pendants—which once downlit the assembly line—upside down to create ambient uplight.

"The marketing teams gather in the main conference room to

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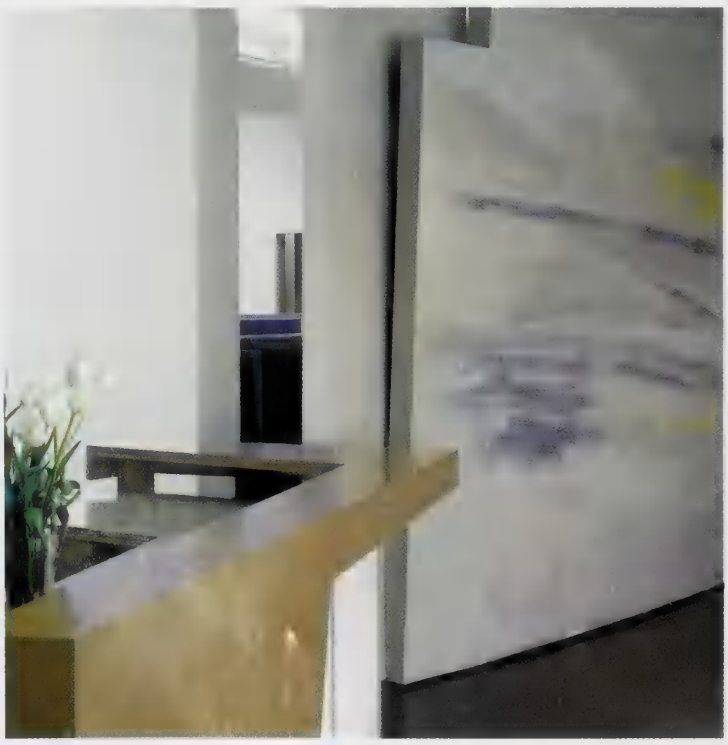
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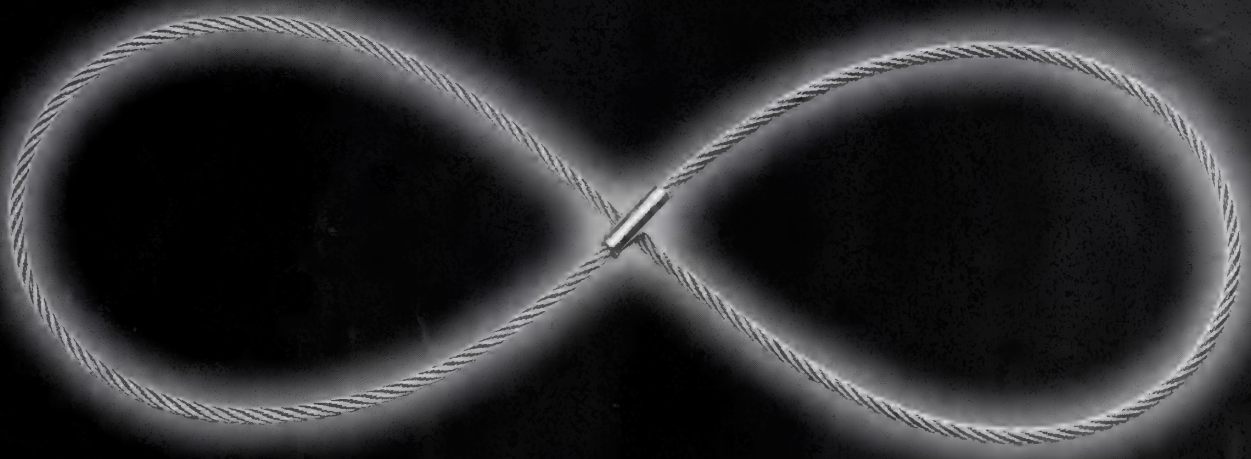
The conference room's canted walls are polycarbonate panels set within a frame of pine studs (left). The cabled canopy leaves HVAC ducts exposed. There are few right angles and many apertures for peering into adjacent rooms (below left).



write scripts, brainstorm, and review goals," Brown says. "It has a slightly more formal look but maintains a connection to the open-plan space through its partially open enclosure." On two sides, canted walls angled by 7 degrees are formed by polycarbonate panels framed by two-by-four pine studs. The canopy overhead, tied with steel cables, is left open in the center to allow views of the building's ceiling and HVAC elements. A slot notched in the top of one end wall allows a fluorescent pendant to continue its run from the operator area into the conference space. Likewise, a section of the factory's original ceiling-mounted hoist traverses the room. A conference table designed by Brown features a glass top resting on a brushed-steel base and is surrounded by sporty steel chairs. Elsewhere in the office, classic reproduction lounge chairs based on designs by Eames and Le Corbusier add punctuation marks of high style. ■

Sources
Paint: *Shaw Vogel*
Carpet: *Shaw Carpets*
Seating: *Cassina; Herman Miller*
Workstations: *Interior Concepts*
Hardware: *Blum*
Skylights: *Kawneer*
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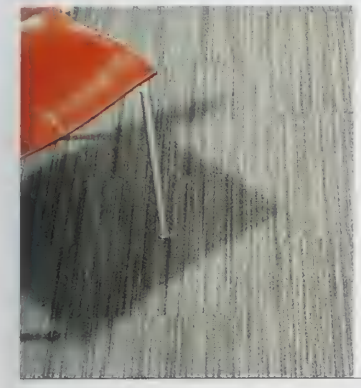
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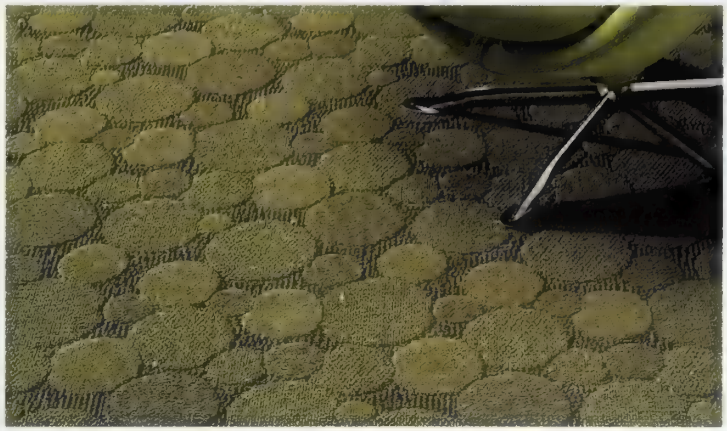
Interiors Products

Commercial Carpets



◄ Smooth as silk

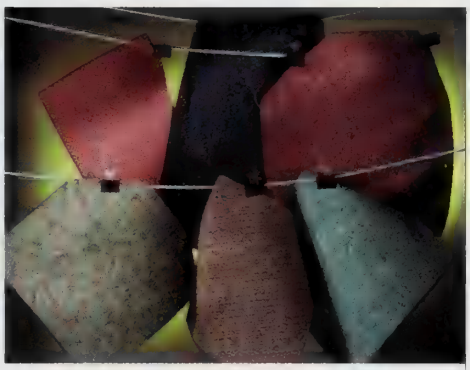
Tussah has a random multitonal striped effect that creates the look of banded wild silk. Tussah is available in 18" and 36" tiles in a color line consisting of 14 neutral and natural shades. Colors such as green slate, ore, lichen, and black walnut reflect the style's organic influences and coordinate with the most widely used corporate finishes. 800/248-2878. C&A Floorcoverings, Dalton, Ga. **CIRCLE 200**



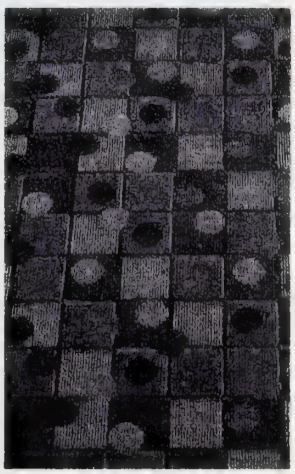
▲ Going around in circles?

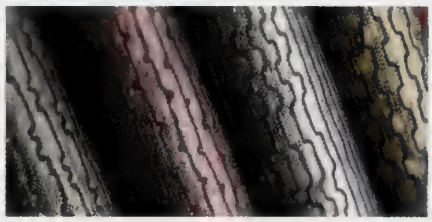
Atlas Carpet Mills' newest release includes Bubbles, Dots, and Swirls, three coordinating animated patterns. Bubbles (shown), a textural overlay of circular motifs, and Dots, a pattern of small dots juxtaposed over a textural field, are supported by Swirls, a subtle background texture. Bubbles and Dots are offered in a palette of 25 colors; Swirls has five additional colors. All three patterns feature a high-density, interloop construction, DuPont Antron Legacy nylon, and can be custom colored for a minimum of 45 feet. 800/367-8188. Atlas Carpet Mills, Los Angeles. **CIRCLE 201**

► Mature audiences



Based on interviews with designers and end users that specialize in senior housing, J&J Commercial developed its newest collection of products, Living Solutions. Focused on the functional needs of older adults, Living Solutions is a collection of six commercial constructions and textures with a residentially inspired color palette of ten colorways. Each product is available in 12' and 9' widths. 800/241-4586. J&J Commercial, Dalton, Ga. **CIRCLE 202**





▲ Groovy textures

The Modern Collection includes Square Layers (squares that appear to float one above the other) and Spheres (left, featuring circles randomly placed inside and outside of a grid). The Metafloor II Collection (above) expands upon the hybrid flooring category with three new patterns and a more flexible backing. 800/523-5647. Lees Carpets, Greensboro, N.C. **CIRCLE 203**



▲ Carpeting for purists

Industry (right) is "the architectural purist's answer to covering the floor," according to Bentley Prince Street. The broadloom installation will appear as a distinct plane defined by color, without distractions of texture or pattern. The monolithic tile, with the grouted-edge detail, imposes an architectural grid on the floor plane. Designed by Suzanne Tick Inc., the Amazing, Scream, and Wow broadloom collection (above left) features circle, random geometric, and Greek Key motifs. 800/423-4709. Bentley Prince Street, City of Industry, Calif. **CIRCLE 204**



◄ Enviable tile

Shaw Contract has launched Green with Envy, a modular carpet collection that features the Eco Solution Q® yarn and EcoWorx backing. This "Eco-Eco sandwich" offers recycled content and 100 percent recyclability. The 10 patterns use the floor as a palette and the tile as a design element. The carpeting's pattern construction ensures durability at low weights, reducing waste. 800/257-7429. Shaw Industries, Dalton, Ga. **CIRCLE 205**

Interiors Products
Commercial Carpets

► Scotland yarns

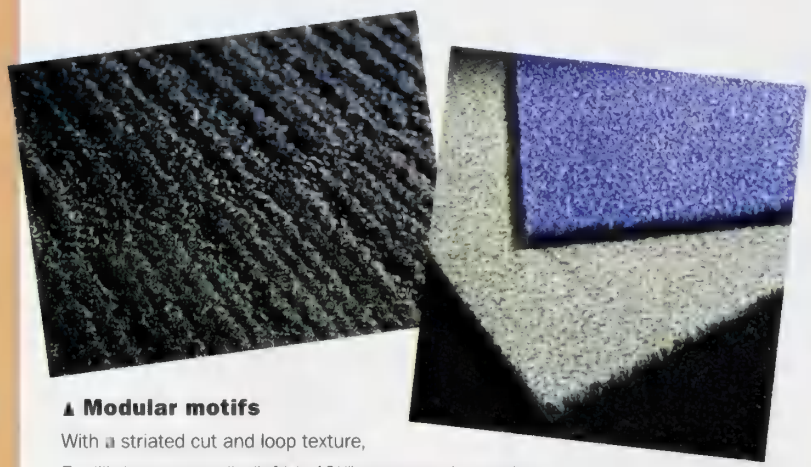


Inverness, Elgin, and Knightswood are three new coordinating tufted broadloom products from Monterey Carpets. Made from skein-dyed, DuPont XTI continuous filament nylon, the patterns are suited for high-end corporate, hospitality, or retail interiors. Inverness and Elgin offer tip-sheared architectural styling, while Knightswood features an all-loop texture that emulates a fine woven carpet. 800/678-4640. Monterey Carpets, Santa Ana, Calif. **CIRCLE 206**

► Have it your way

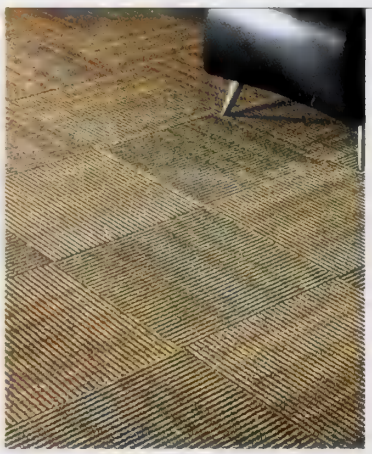


Milliken Carpet has assembled custom designs in a 36" modular carpet collection called Image Series Four. The patterns were created in collaboration with designers working with Milliken design studios around the world. Designer Staci Romano of OZ Architecture in Boulder, Colo., collaborated with Milliken to design #121 (top) for Agilent Technologies' headquarters in Loveland, Colo. Design #122 was created by Milliken's Liberty Worth and modified by Heidi Spletzer of Sizeland Evans Interior Design, Calgary, Canada, for Telus Communications' Calgary and Toronto offices. 800/241-4826. Milliken Carpet, La Grange, Ga. **CIRCLE 207**



▲ Modular motifs

With a striated cut and loop texture, Equilibrium carpet tile (left) is 19½" square and uses the GlasBac backing system, consisting of two layers of thermoplastic vinyl composite material, reinforced with fiberglass for stability and performance. Velluto (right) is a new, low-profile cut pile offering, which, like Equilibrium, utilizes Struttura solution-dyed fiber from Aquafil, Interface's new partner in high-recycled-content nylon polymer. 800/336-0225. Interface Flooring Systems, LaGrange, Ga. **CIRCLE 208**



◄ Rhythmic colorways

Mannington Commercial recently won the Silver Award in the annual DuPont Antron Product Innovation Award competition, for Visual Jazz, a multicolored tweed modular carpet that is offered in eight colorways, each containing 24 colors. Crafted out of DuPont Antron Legacy nylon, this durable loop performs well in high-traffic corporate environments. 800/241-2262. Mannington Commercial, Calhoun, Ga. **CIRCLE 209**



▲ Legendary pattern

A pattern of blocks and squares—the images alternating in measured sequences between negative and positive colorations—distinguishes Urban Legend, the newest patterned carpet from Durkan Commercial. Urban Legend utilizes Solutia's Ultron VIP skein-dyed nylon for maximum chroma and performance. The carpet is designed to coordinate with other Durkan Commercial pattern introductions, which include Mass Transit and Lunar Landing. All three new patterns are available in 14 colorways. 800/554-6637. Durkan Commercial, Kennesaw, Ga. **CIRCLE 210**



▲ Think on top of the box

Constructed of 100 percent DuPont Antron Legacy nylon, Boxes, the newest offering from Beaulieu Commercial, features a simple, geometric pattern with a two-dimensional look. Boxes' fashion-inspired 17 colorways coupled with the performance characteristics of Antron nylon makes it suitable for the corporate and retail market sectors. 800/451-1250. Beaulieu Commercial, Adairsville, Ga. **CIRCLE 211**

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New Products

From a signature handcrafted lounge chair in the lobby of an office to the tablet armchairs scattered throughout a conference room for mobile laptop users, **office furnishings** have a variety of forms and functions. Whether the pieces are storage units, task chairs, or multipurpose tables, office furnishings **need to collaborate** with each other as effortlessly as with the end user. *Rita F. Catinella*

Largest collection of Danish crafted furniture now available in U.S.

Brayton International, a Steelcase Company, announces a new partnership with PP Møbler and the Hans J. Wegner estate that allows Brayton to offer the largest collection of Hans J. Wegner designs available for sale in the United States. A family-owned company founded in 1953 in Allerod, Denmark, PP Møbler has skilled cabinetmakers construct all its furniture by hand. Offering more than 20 Hans J. Wegner models, the collection includes side chairs, tables, a rocking chair, lounge chairs, and a tray table in four wood finishes, three leather colors, and five textile options. The Folding Chair shown here was originally designed in 1949; the dates of the original pieces range from 1945–1990.





Also new from Brayton is Lazlo (left), the company's newest Walter Knoll design. The piece features a headrest pillow that neatly fits between the back cushion and the back of the sofa, giving the occupant neck and head support. Lazlo is available in one- , two- , and three-seat versions in addition to a small or large ottoman. The two- and three-seat versions feature loose cushions and a headrest pillow. The legs are available in aluminum or wood in 22 standard finishes. Brayton will also be offering expanded options for the company's Enea metal stacking chair. The latest iteration will be available in a plastic or belt-leather seat and back. 800/627-6770. Brayton International, High Point, N.C. CIRCLE 212

New U.S. headquarters for Swiss furniture

USM Modular Furniture, the Swiss manufacturer of modular furniture, has opened its new flagship showroom and U.S. headquarters in a renovated historic, cast-iron building in New York City's SoHo district. The design, headed by Thomas McKay, principal of New York–based MSM Architects, is being completed in two phases: The final renovation is slated for completion in 2003. The building, 28-30 Greene Street, was designed by J.F. Duckworth and built in 1872. Characterized by a Second Empire facade and a dramatic mansard roof, it had fallen into disrepair due to age and years of neglect. USM's newest product introduction for the U.S. market, eleven22 (shown), is featured throughout the new space. Eleven22 is a self-contained, fully integrated vertical work solution. The aluminum base frame integrates height-adjustable and folding work surfaces and various lighting, cabling, storage, paneling, and shelving options. 800/4-Haller. USM U. Schaerer Sons, New York City. CIRCLE 213





Chair keeps it simple with 18 parts

The #19 chair from Allsteel earned its name from the 18 primary components in its construction (the user is part #19). "The problem with so many chairs on the market today," says Allsteel president Stan Askren, "is that although they are ergonomically beneficial … the mechanisms and technology are overly complex. As a result, the most sophisticated chairs often go unadjusted." In development for two years, #19 features the Tria seat cushion (a combination of foam, TechnoGel, and a microporous textile) and Plexus lumbar support, which relies on a calibrated tension system. 563/262-4800. Allsteel, Muscatine, Iowa. CIRCLE 214

New Products



▲ Space-saving solutions

Sequence (left) is a lateral-track storage system from Traversa that can be reconfigured or relocated. The cabinets feature decorative end tiles in a variety of styles and finishes. Another new storage solution for the office is available from Spacesaver (right). A waist-high TouchPad Release is now offered by the company as an alternative to the mechanical foot pedal on Rotary Storage units. The code-access keypad release is ADA-friendly and offers all the current TouchPad security features. 877/410-0035. Traversa, Fort Atkinson, Wis. **CIRCLE 215**; 800/492-3434. Spacesaver, Fort Atkinson, Wis. **CIRCLE 216**



▲ Giddyap

Humanscale is now in full production of its Freedom Saddle seat, designed by Niels Diffrient. The Saddle is available in a full range of textiles, including an antimicrobial fabric for health-care, lab, and clean-room applications. The triangular shape of the cushion allows users to sit normally or straddle the seat. 800/400-0625. Humanscale, New York City. **CIRCLE 217**

▼ Take a look

Haworth introduces Look, a new seating family designed by Rob Leonetti. The Look collection includes mid-back-task, high-back-executive, side, and lounge chairs. Shown here, the four-legged lounge chair features a steel-tube frame with fully upholstered back, seat, and softly curved arms. Choose from silver or black finishes, and with or without casters. 616/393-3000. Haworth, Holland, Mich. **CIRCLE 218**





▼ Get going

KI's Torsion on the Go! tablet armchair is a mobile, nesting chair with an oversize tablet ideal for use with laptops. The flex-back chair was developed to address movable seating requirements for teaming, training, and informal conferencing. KI's newest multipurpose tables are DataLink and Trek. DataLink features a gently tapered foot and eight edge profiles. Trek is offered in a range of standard laminates, with legs in an *X*, *T*, or *TT* design, and 30 base finishes. 800/424-2432. KI, Green Bay, Wis. **CIRCLE 219**





▲ Modus operandi

Metropolitan Furniture introduces m/o, a modular case-goods system for project work in the private office. Work surfaces include perimeter tops, extensions, mobile desks, and pedestal desks. Integrated wireways manage cables below the work surface, and convenient power and data/voice outlets at the desktop connect people to technology. Storage components include modular pedestals, overhead storage units, free-standing storage cabinets, and project walls. 510/567-5200. Metropolitan Furniture, Oakland, Calif. **CIRCLE 220**

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New Products



▲ Building blocks

Award-winning designer Richard Holbrook wanted to design a new line of office furniture that would combine contract-level quality with the accessibility of off-the-shelf furniture. The result is the DNA modular furniture line, which includes mobile and wall-mounted desks, storage systems, tables, work chairs, screens, and accessories. DNA is a partnership between Teknion and Holbrook, who has had more than 10 years experience with Herman Miller. Along with the new line, Holbrook also devised the Web-enabled software called dna Assistant to enable company mangers to set parameters, such as price, product type, or color, and then invite others to configure their own work spaces around these predetermined limits. 626/683-8048. DNA, Pasadena, Calif. **CIRCLE 221**

▼ Fabric additions

The Eames Aluminum Group of seating is now available from Herman Miller with the Cygnus mesh material. Similar to the Aeron chair's Pellicle fabric in its aeration and translucent qualities, Cygnus features "elastomeric" properties to distribute the user's weight evenly across the seat and back. Also new to Milller are 21 fabric pattern additions, representing the latest from textile-design-firm partners Jhane Barnes Textiles, Luna Textiles, and Maharam. 616/654-3000. Herman Miller, Zeeland, Mich. **CIRCLE 222**

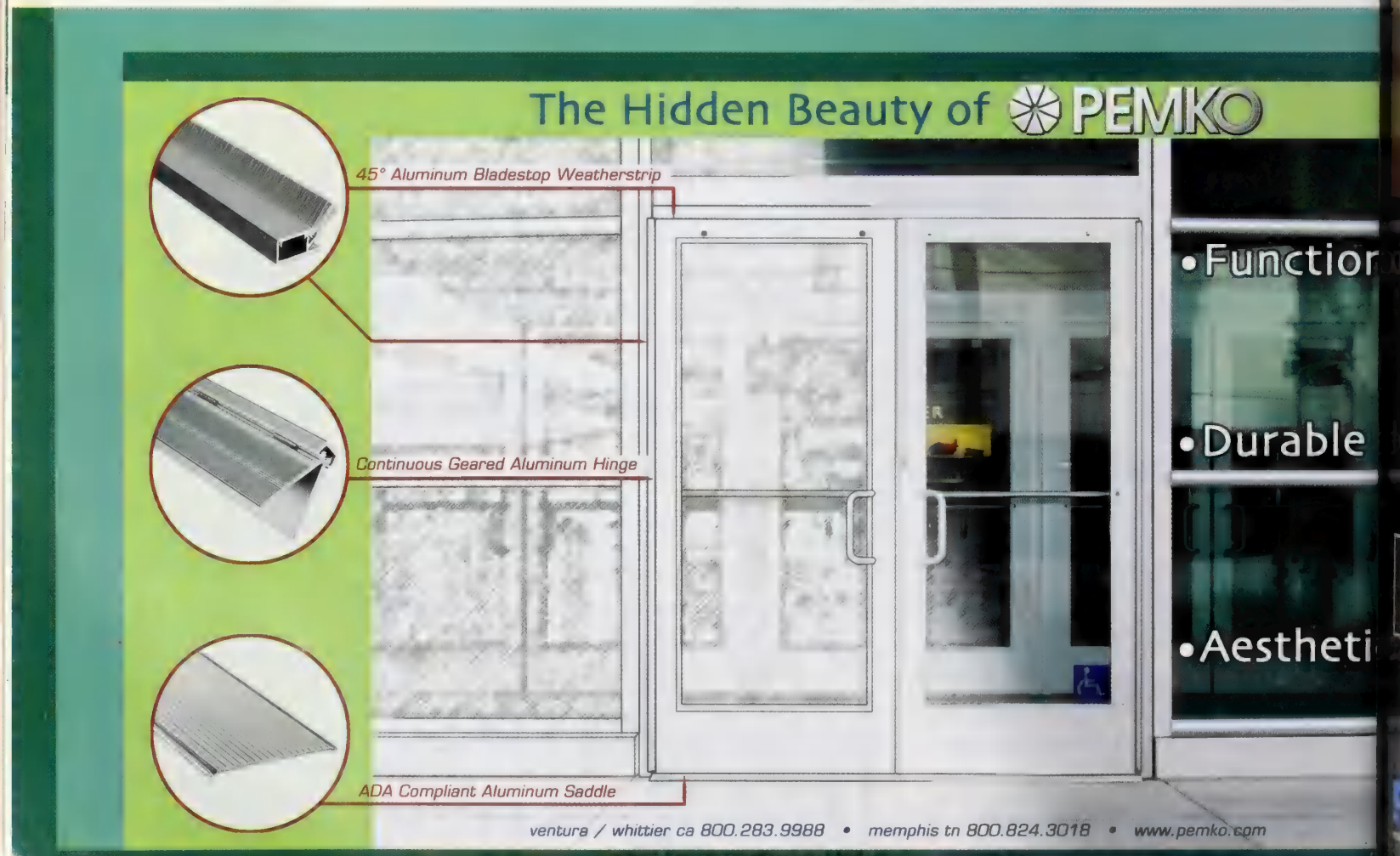




◄ Wall for one and all

The Landscape collection is defined by an aluminum screen wall that allows work spaces to expand or contract as needs change. The screen wall's structure allows work surfaces, storage components, accessories, and lighting to attach at any point and for power and data to be easily installed and later reconfigured. 507/533-4235. Halcon, Stewartville, Minn. **CIRCLE 223**

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New Products

▼ Kick it around the office

Turnstone has added several new features to the Kick systems furniture line, including more user functions and new data and power access. Kick Phase II products include Data Duct, Downspout, and Utility Bar—new ways to route data cables atop panels and provide data and power outlets the user can position anywhere along the panel. The line also offers a 120-degree panel-configuration option and easy-access storage with a translucent, flexible cover. 800/333-9939, ext. 11. Turnstone Office Furniture, Grand Rapids, Mich. **CIRCLE 224**





▲ A chair of one's own

The ergonomic Ready chair from Dauphin features a transparent net backrest and several amenities to make the chair one's own: The handgrip on the backrest can include a nameplate to personalize the chair, the backrest hanger holds a jacket, and the foldaway pocket stores personal belongings. 800/631-1186. Dauphin, Boonton, N.J. **CIRCLE 225**

▼ Flex to success

The Flex stackable chair provides both a pivoting back as well as a flexing seat. The patented Flexion seat passively adjusts as the user leans forward, minimizing stress points under the legs. Designed by Zooey Chu, Flex features elliptical tubular-steel legs and a perforated back. 800/563-3502. Allseating, Mississauga, Canada. **CIRCLE 226**



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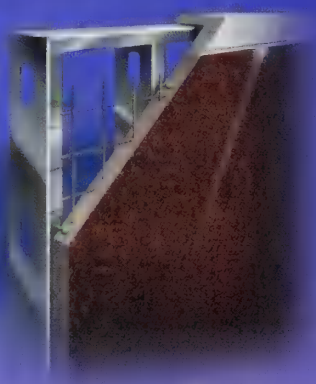
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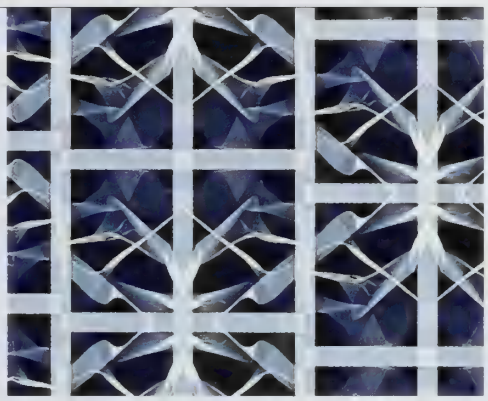
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Product Briefs



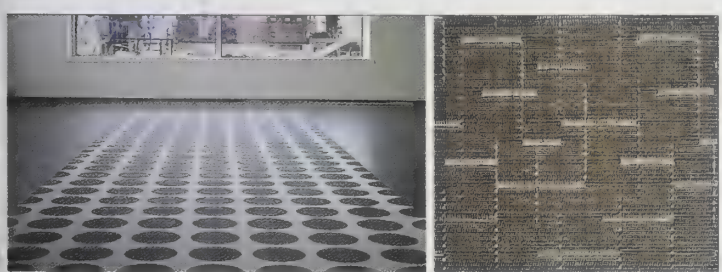
▲ Managed red cedar

Weyerhaeuser has introduced Cedarone, a line of western red cedar products and related services available across North America. Managed from the forest floor to the marketplace, western red cedar products do not require chemical preservatives and are a renewable resource. Four popular grade categories are available: Premium Clear, Performance Clear, Premium Knotty, and Performance Knotty. Weyerhaeuser claims to be the world's largest manufacturer and distributor of western red cedar. 866/233-2766. Weyerhaeuser, Federal Way, Wash. CIRCLE 227



► Computerized coverings

Wolf-Gordon's newest guest designer for their commercial wallcovering line is Karim Rashid. Rashid conceived the Digital Nature collection to explore new ways to reference patterning found in nature. He digitally generated the designs and manipulated them to resemble a variety of plant, animal, landscape, and even human structures. The five patterns in Digital Nature are being produced as a total of 61 items in all different colorways. Signature Rashid colorways include chartreuse, cyan, magenta, and silver. 800/347-0550. Wolf-Gordon, Long Island City, N.Y. CIRCLE 229



▲ Vinyl style

The newest incarnation of the Plynyl collection from Chilewich includes three patterns—dots, dashes, and squares—in five muted metallics. Originally developed last year with architect Joe Sultan, Plynyl features a woven vinyl textile bonded to cushioned polyurethane that provides durability and an array of textures and new patterns. Plynyl is available in wall-to-wall, tiles, and mats for both residential and commercial use. 212/679-9204. Chilewich, New York City. CIRCLE 230

Product of the Month
The Family Studio



At the K/BIS show held last April in Chicago, Whirlpool introduced a new concept in home design that combines Whirlpool products with a multifunctional space for families. According to research by Whirlpool, the average family does 8 to 10 loads of laundry each week, adding up to hundreds of hours a year. Whirlpool worked with designers and builders to create a concept room that would include items such as a washer and dryer, an island or large table for folding clothes, extra cabinets and shelves for storage, track lighting, an ironing station, and a drying cabinet for air-dry washables. The concept would also include a space for a computer and/or television. Whirlpool offers products such as the DryAire Drying Cabinet, SinkSpa Jetted Sink, Impress ironing station, Duet washer and dryer, and the Personal Valet Clothes Vitalizing System. All the appliances can be encased in custom cabinetry. 800/253-1301. Whirlpool Corporation, Benton Harbor, Mich. CIRCLE 228





◄ With the band

The Locknroll furniture collection recalls the sturdy cases "roadies" use to pack up equipment during a tour. Designed by Manitou Design of London and made in Germany, the pieces feature computer-cut components, birch plywood sourced from renewable forests, and a palette of Italian laminates. Shown here are the Fleetwood chest of drawers and the Joplin shelving unit suited to home entertainment applications. All pieces are distributed worldwide directly from Germany. 44/207/771-8374. Manitou Design, London. CIRCLE 231



Product Briefs



► Conservatories and garden windows

Renaissance Conservatories' Garden Window, shown above left, features a large center window with Victorian Arch accents and two operable casement windows with Prairie Style lites. There is a choice of glass or wood shelves, plus an optional countertop extension that provides work space behind the kitchen sink. The Revival Series, above right, includes 15 authentic period conservatory designs. These shapes are a starting point that can then be customized as needed. Finishing details include more than 40 window and 20 door design options. 800/882-4657. Renaissance Conservatories, Leola, Pa. **CIRCLE 232**

► Welcome to this century

The Century tile collection from Amtico is available in 12 colors for the commercial market. A hard-wearing textured finish complementing a subtle iridescence makes Century appropriate for high-traffic areas such as restaurants, retail stores, and hotels. Century is available in 12" x 12" and 18" x 18" square tiles. 800/370-7324. Amtico International, New York City. **CIRCLE 233**



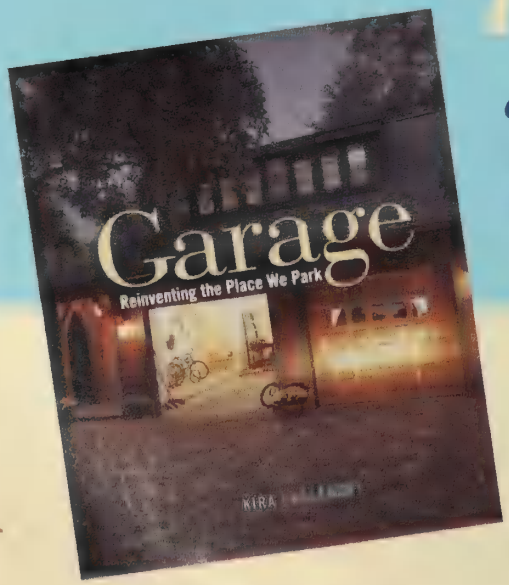


◄ Forest Council approved

Marshfield DoorSystems (formerly the door division of Weyerhaeuser) introduces their Environmental Class wood doors, the first on the market with a Forest Stewardship Council environmental certification. Suited for use in offices, schools, hospitals, government facilities, and other commercial applications, the doors are available for nonrated as well as 20-minute rated applications with either neutral pressure or positive pressure fire-labels. A variety of finishes are available. 800/869-3667. Marshfield DoorSystems, Marshfield, Wis. **CIRCLE 234**

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Product Briefs

► Hiding the grid, naturally



Armstrong's Vector grid-hiding edge detail is now available with the look of wood. Woodworks Vector ceilings are offered in three standard veneers—beech, cherry, and white maple—in either perforated or unperforated panels. The panels are designed for use in high-visibility areas where the look of wood is desired, such as signature spaces in corporate, hospitality, and retail environments. The panels utilize the patented Vector edge detail to produce a ¼" reveal that minimizes the visible grid. Vector ceilings also ensure more damage-free applications, because the panels feature upward installation and downward accessibility. This increases the durability of the ceiling by reducing the possibility of damage to the panels caused by hanger wires and other obstructions in the plenum. 888/CEILINGS. Armstrong World Industries, Lancaster, Pa. **CIRCLE 235**

▼ Metallic or pearlescent

The 3D effects of Luxica Envinyl commercial-grade flooring are achieved through a layered manufacturing process. Luxica is completely recyclable, and 35 percent postconsumer recycled PVC hoses, tapes, and other materials are used in the base layers of the backing system. Luxica's new Metallo and Oceanas collections are shown below. 877/843-8184. To Market, Washington, D.C. **CIRCLE 236**





▲ Exterior fire-treated wood

A new fire-retardant-treated wood is suited for balconies, stairways, covered walkways, and other exposed applications. FRX lumber and plywood is available in Douglas fir, southern pine, and western red cedar. The pressure-treated wood qualifies for a Class 1 flame-spread rating. 404/362-3986. Arch Wood Protection, Smyrna, Ga. **CIRCLE 237**

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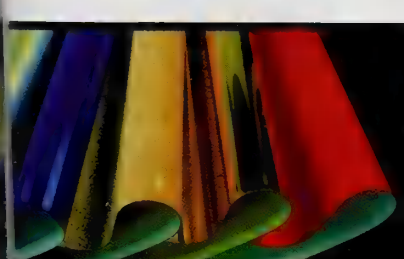


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Designer: **Frederic-Auguste Bartholdi**
Product: **Copper plates on a steel frame**

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Product Literature

Color connection system

Pantone has moved into the commercial, industrial, and hospitality segments of the interior-design industry. The Pantone for Architecture & Interiors System allows designers to connect different categories within the industry, including carpet, fabrics, paint, leather, flooring, fiber, furniture, and laminates. The System consists of 1,757 colors in cotton, paper, and digital formats, with a 203-color supplement of mostly whites and neutrals. Drawing insight and direction from the fashion, beauty, and industrial-design markets, the Pantone View Colour Planner forecasting tool rounds out the system. 888/PANTONE. Pantone, Carlstadt, N.J. **CIRCLE 238**

Fireplace design CD-ROM

Fireplace Design Solutions is a new interactive CD-ROM tool that allows users to design, visualize, and estimate new or remodeled fireplaces. 800/255-1727. Cultured Stone, Napa, Calif. **CIRCLE 239**

Brighter finish options

A new brochure presents architects with Tnemec's full range of Premier Finishes. The brochure showcases the range of opaque, metallic, and clear topcoats in the Premier Finishes line, as well as their performance capabilities and ideal applications. 800/836-6321. Tnemec, Kansas City, Mo. **CIRCLE 240**

Industrial flooring systems

A new four-color brochure describes the full line of General Polymers industrial flooring products and systems. The brochure provides color charts and details for systems that both restore floors and protect them. 800/543-7694. General Polymers, Cincinnati. **CIRCLE 241**

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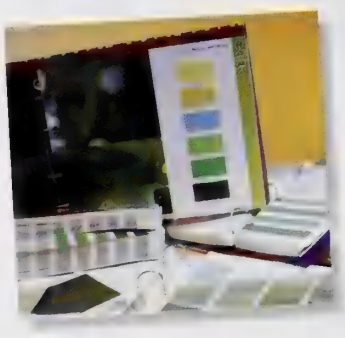
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Product Literature

Molding showcase

Style Solutions has introduced their comprehensive new Moulding Showcase kit for architects and designers. The boxed kit features eight samples of Florentine molding from Style Solutions, each with a different real metal Metallon finish. 800/446-3040. Style Solutions, Archbold, Ohio. **CIRCLE 242**

Vinyl wall coverings catalog

A new catalog introduces Pawling Corporation's Standard Products line of PRO•TEK impact-resistant vinyl wall coverings for institutional, health-care, commercial, and residential environments. The catalog sections include information on applications, suitable thickness of wall coverings for installations, selection guidelines, required product accessories, and a color-selection guide of the available 50 standard colors. 800/431-3456. Pawling, Wassaic, N.Y. **CIRCLE 243**

Exterior-lighting brochure

A new brochure highlights the major features of the Intrigue Series of exterior architectural lighting fixtures from Phoenix Products Company. 414/431-2353. Phoenix Products, Milwaukee. **CIRCLE 244**

Linear-lighting brochure

Finelite claims that its new brochure is the first to sell the concept of linear lighting, rather than merely selling a specific product. In the brochure, Finelite demonstrates why linear lighting should be used and how the costs are comparable to commonly used recessed products. 510/441-1100. Finelite, Union City, Calif. **CIRCLE 245**

Space-saving binder

Spacesaver Corporation's new Storage Design Resource binder includes a complete product portfolio as well as reference tools such as design and educational resources, ADA requirements, CSI specifications, and floor loading data. 800/492-3434. Spacesaver, Fort Atkinson, Wis. **CIRCLE 246**

Firestopping video

Protection Knowledge Concepts has introduced a four-tape video series dealing with "The Basics of Firestop Systems." The instructional program is designed to provide fundamental knowledge about firestopping through penetrations. 888/831-4RJA. Protection Knowledge Concepts, Chicago. **CIRCLE 247**









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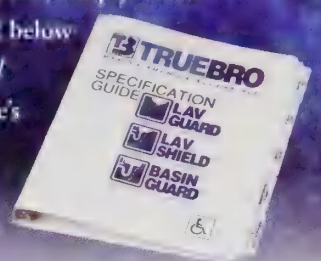
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SMALL, MEDIUM, LARGE *(continued from page 82)*

of 410, much of the firm's overall management is handled by the younger principals, freeing the senior principals to focus on projects. At the Smith Group, in Detroit, with 936 employees and eight offices, president and C.E.O. Carl Roehling, FAIA, found that "each regional office tended to evolve to its own unique culture due to the fact that each operated independently, until all were merged in the late 1990s."

Obviously, which organizational structure works best for a firm will vary. Whatever structure is chosen, we concur with the authors of *How Firms Succeed* that it should allow employees to "build critical bonds of support, loyalty, and a sense of confident mutual reliability."

The design-and-profitability equation

Almost every book on architectural business says that successful practices are built upon design quality. While this idea is noble, from a financial standpoint it is somewhat simplistic. Few disagree that architects frequently don't excel as business managers. Add to this that architecture is a creative, quality-driven, problem-solving practice. This results in an expensive design process. Many firms have talked to us about the difficulty of doing good design and staying profitable. Some small firms resemble old-fashioned ateliers, which operate like artisans' workshops. The process they use to solve problems is difficult to quantify: Quality counts more than any other single thing, and interns and principals spend endless hours perfecting their buildings. While larger firms structure themselves so they can emulate the way small firms function, they tend to keep tighter controls on how much time is spent on design. Why is this more true in large firms than small ones? Large firms tend to establish a "corporate" style of management. Costs are carefully tracked because clients demand fiscal accountability. Minimizing design time has enabled some firms to become fantastically profitable, although the practice may not win design awards.

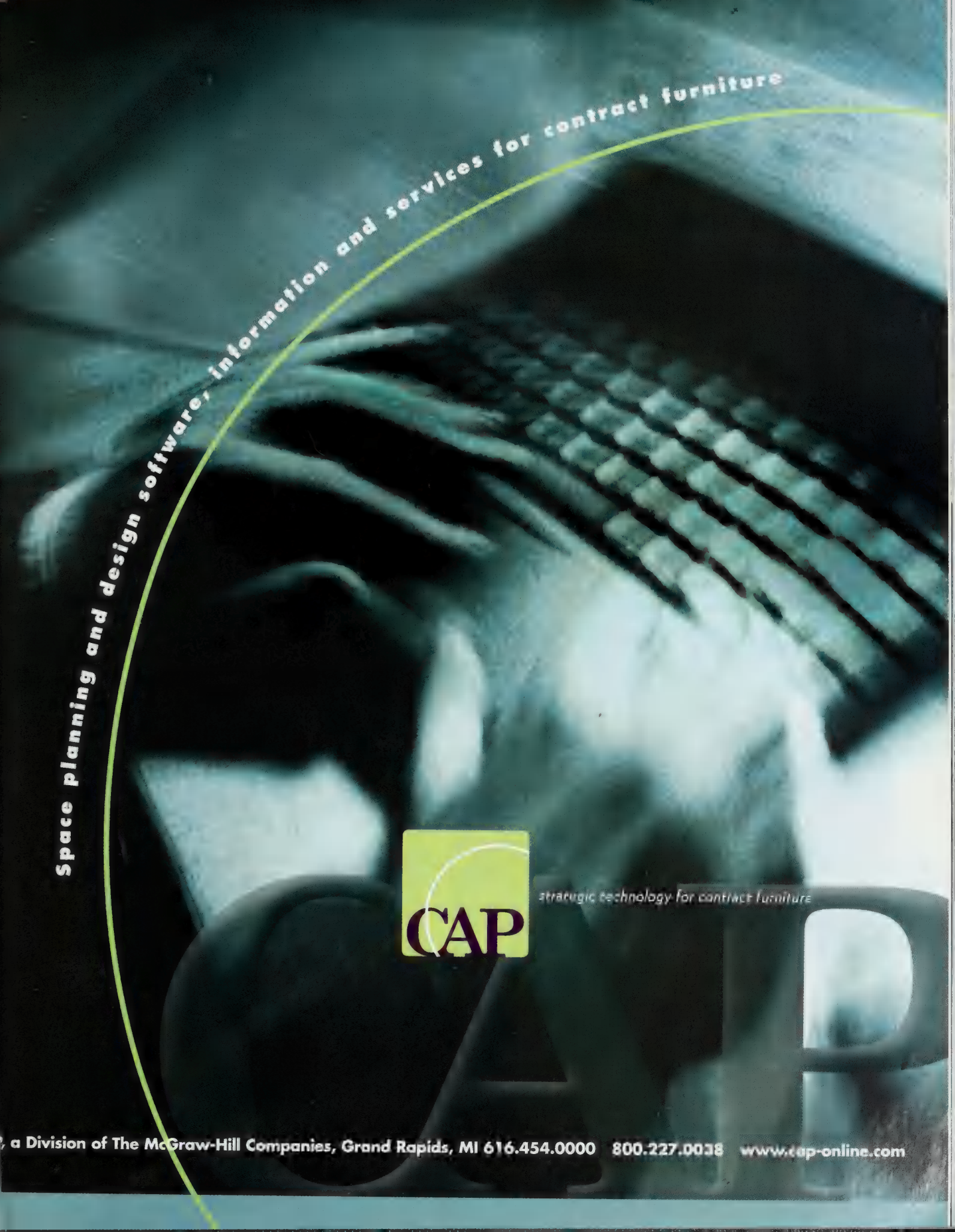
Some architects who responded to our survey weighed in heavily on the artistic side of the equation, but they are not without an awareness of how costly it can be to spend time perfecting a design. Randy Brown, AIA, spoke to us about an idea he originally encountered in Dana Cuff's well-known book, *Architecture: The Story of Practice*. He says, "Architects go through a continual discovery process, always trying to make the design better. But, there comes a point where you spend more time than is profitable to perfect a project—'design' keeps telling you to spend more time; 'profitability' tells you to stop—they have a dialectical relationship; they pull at each other. For every hour you cross that line you lose money."

Recent Pritzker Prize winner Glenn Murcutt works alone (RECORD, May 2002, page 39). Quoted in *The Sydney Morning Herald*, he said that smaller projects can produce more exceptional new work than larger ones. "Architecture takes time," he says. "It's not a flash-in-the-pan thing at all. Smaller works give you a chance to break the ground, scratching around to get beneath the surface of things. They are a platform for experimentation where the regulations are not so powerful that they force you into maximizing the floor space, which is such a selfish sort of architecture."

Architects face a quandary that contractors do not—they cannot say precisely when the design process is complete. Gilles Depardon, of Ogawa Depardon Architects, says it is a condition of the profession: "We lavish more time and care on our jobs than we can bill for." Others, like Joe Valerio, FAIA, of Chicago firm Valerio Dewalt Train, with 33 on staff, see that firm inefficiencies cause these problems: "The biggest threat to our profit is that unbillable hours get dumped on a project. When work slows down, projects get loaded up with staff, so they can be kept busy until something new breaks."

Still others say that insufficient time for design is a result of pressure from clients, who treat architectural services as a commodity. Many find the high cost of overhead, including insurance, marketing, and technology, adds prohibitive costs to the design process. Architects have a variety of ways of coping with this critical question very much at the heart of the profession. Some firms implement stringent controls on billable hours, others trim overhead, while others resign themselves to operating within narrow profit margins. One well-known architect in New York laments that he wishes his firm could become "a nonprofit," feeling he cannot devote sufficient care to design if he has to worry about profit. An article in the *The New York Times Magazine* on May 5, 2002, cited a doctor who wishes to treat patients on a "care as needed" basis, instead of providing limited care, which he is forced to do under the managed-care system. The situation for doctors and architects is analagous and remains a challenge: Since professional services, like treating patients and designing buildings, are not commodities, they cannot be costed out in the same way that manufactured products are. To effectively respond to the design-versus-profitability equation, our profession must continue to educate its clients to the realization that even in an age of standardized computer-generated drawings, most architects still design buildings one at a time. In August, we will conclude our series with observations on the new generation of talented architects, the role of technology, and the future of architectural practice. ■

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4.					**9.**	a	b	c	d					
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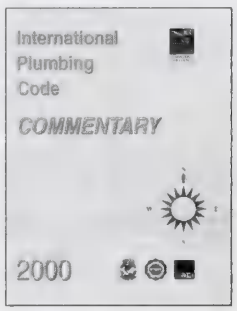
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5.	a	b	c		**10.**	a	b	c	

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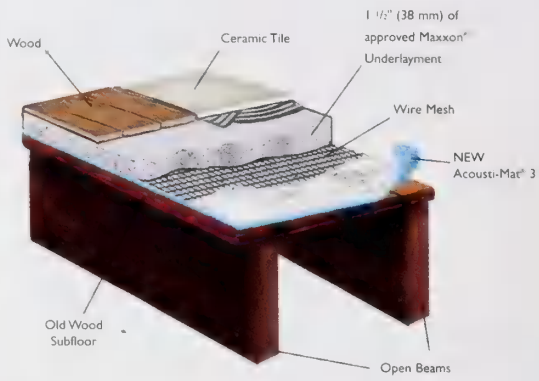
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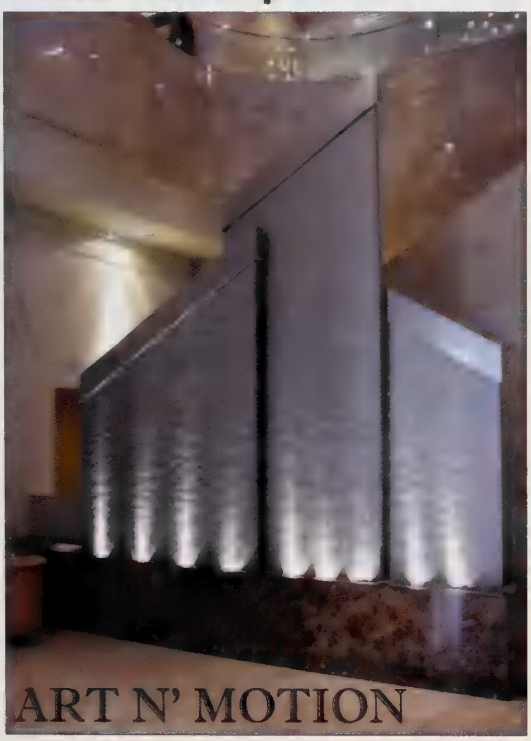
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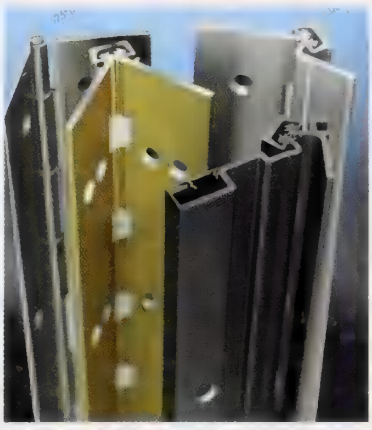
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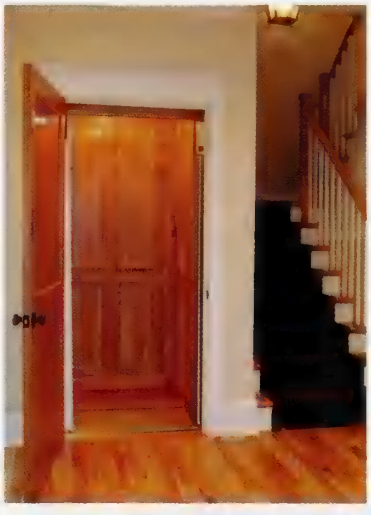


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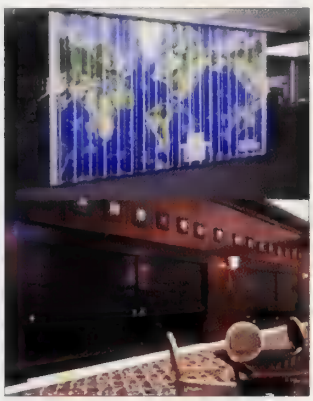


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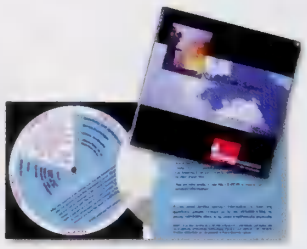


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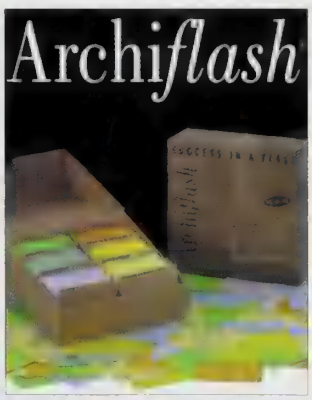


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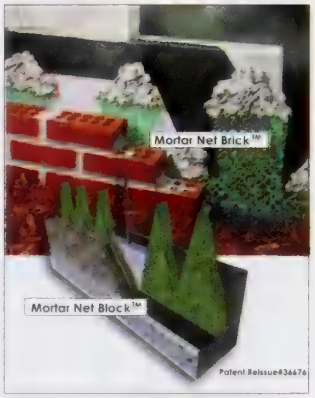


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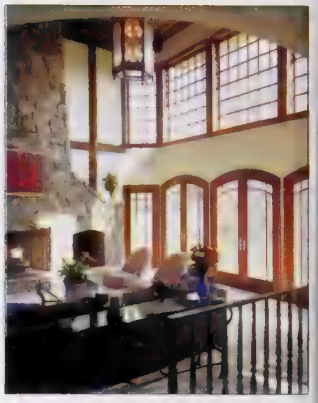


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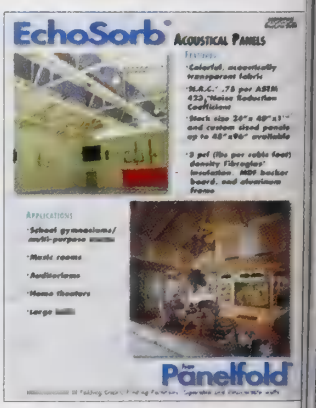


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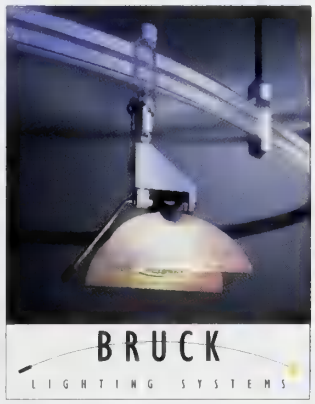


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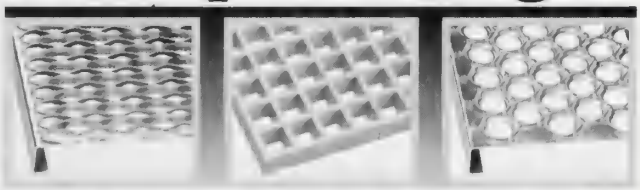
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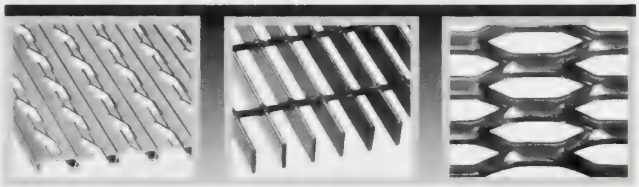
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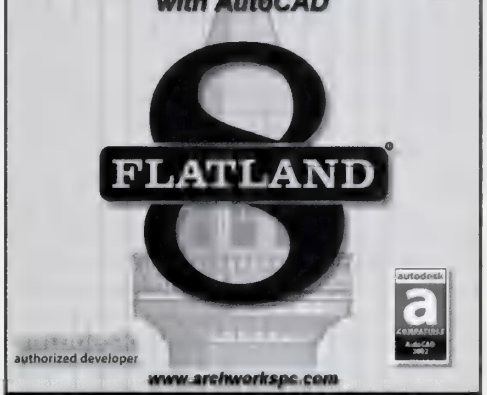
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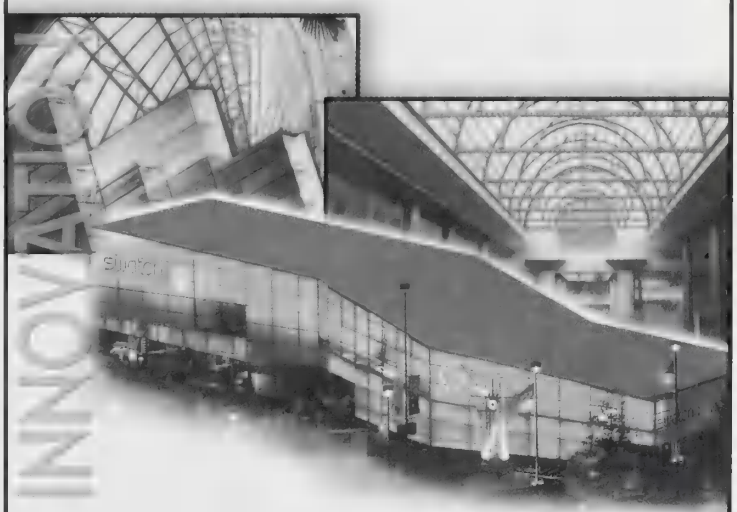
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Maxine Griffith: Fixing what ails Philadelphia

Interviewed by Ingrid Whitehead

When the Philadelphia City Planning Commission's executive director, Maxine Griffith, was serving in the Clinton administration as HUD's assistant deputy secretary, somebody once said that she was "either a spokesperson for the new paradigm or she just can't keep a job." It may be a bit of both. Since receiving her master's degree in architecture from UC Berkeley, Griffith has had a steady stream of planning, design, and development jobs that have made her an important mover and shaper of U.S. cities and regions, such as Oakland, California; New York City; New Jersey; and Washington, D.C. In her current position, Griffith is meeting the challenges of reinventing a troubled Philadelphia head-on.

Q: *What is the current planning challenge facing Philadelphia?* Philadelphia is the nation's fifth-largest city, and one of its oldest. The city is now faced with demolishing and rebuilding some 30,000 decrepit buildings, as well as clearing some 30,000 vacant lots. Couple that with the sometimes complex ownership structures these areas have, and you have a major problem. Our previous mayor, Edward Rendell, was also dedicated to a revitalization effort, one that was concentrated downtown. His accomplishments are clear—downtown Philadelphia is beautiful, livable, and getting better all the time. Now we have to concentrate on the surrounding blighted areas, which are often clustered together. Luckily, Mayor [John] Street is dedicated to taking this on, and in the past two years we've accomplished a lot. The plan that's in place is called the Neighborhood Transformation Initiative (NTI). Mayor Street is very much involved in making this initiative a success. In fact, he began his administration by getting 20,000 abandoned cars off the streets. No small task.

How much money is the city willing to put into the effort of demolishing and rebuilding? We have approximately $290 million to accomplish this. It's a problem that has been building for the past 50 years. We'll just accomplish this one building at a time, integrating new transportation initiatives along with the redevelopment. Two years into the program, we've cleared 4,000 vacant lots and demolished many decrepit buildings.

How can architects get involved? My department is committed to having architects become very much a part of the transformation effort. Right now, the urban design unit has a call to architects and universities to help us plan. We'll supply maps, neighborhood information, census reports, and various technical information. We're hoping firms might choose to do something like "adopt a neighborhood" and then give us recommendations on a particular area—including parks and open-space planning. We'll accept submissions from the professional design and planning community to help us plan accordingly. We need universities and the professional design community to see this situation as an opportunity to really help us make a world-class city out of Philadelphia.

Photograph by Euclides Santiago

For more information about the invitation to participate in Philadelphia's redevelopment efforts (deadline for submissions is February 2003), go to www.philaplanning.org, or call Maureen Kelly at 215/683-4618.

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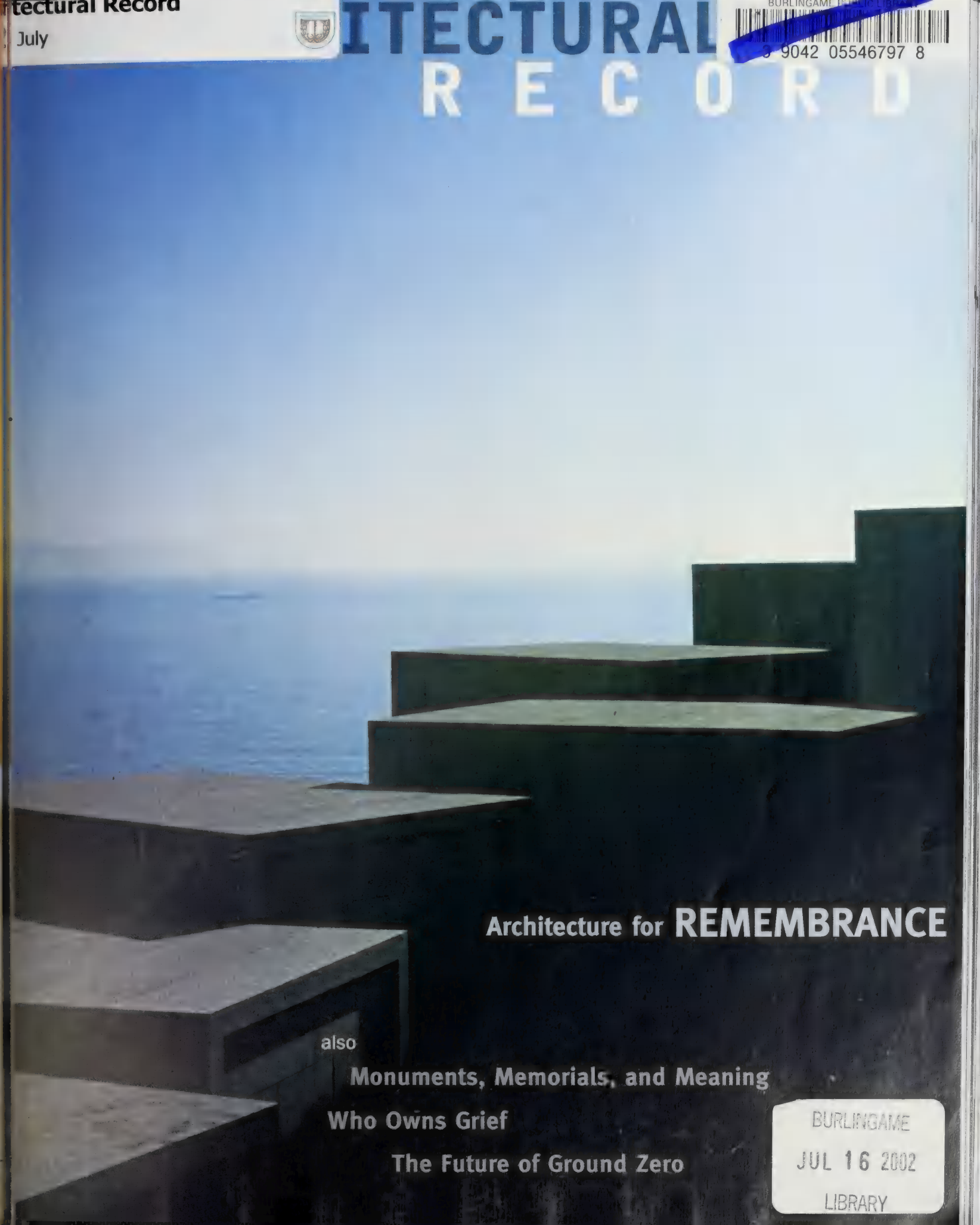
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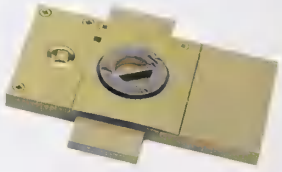
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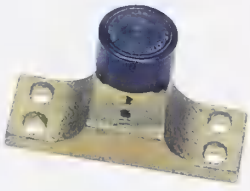
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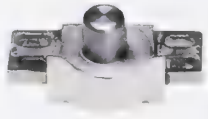
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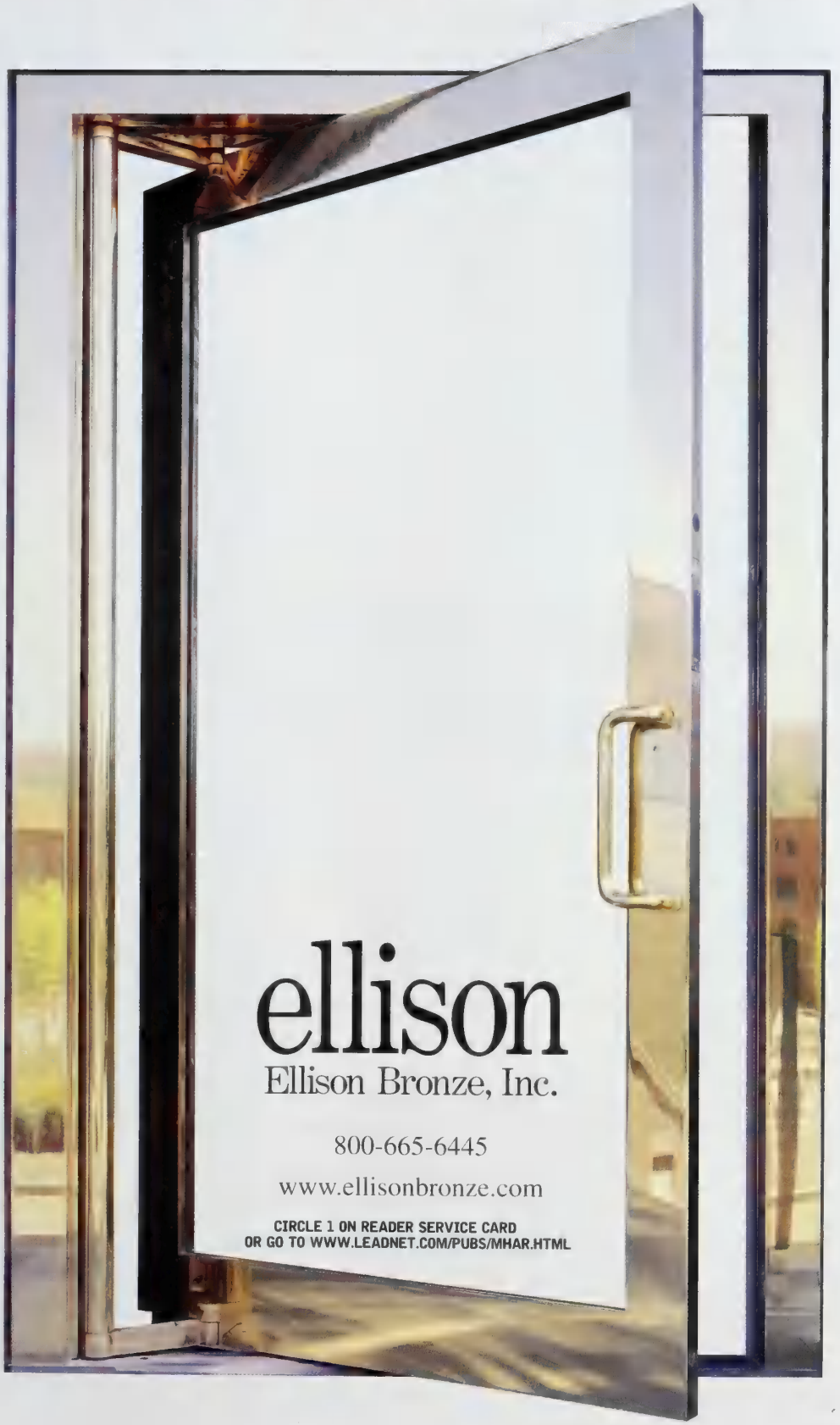
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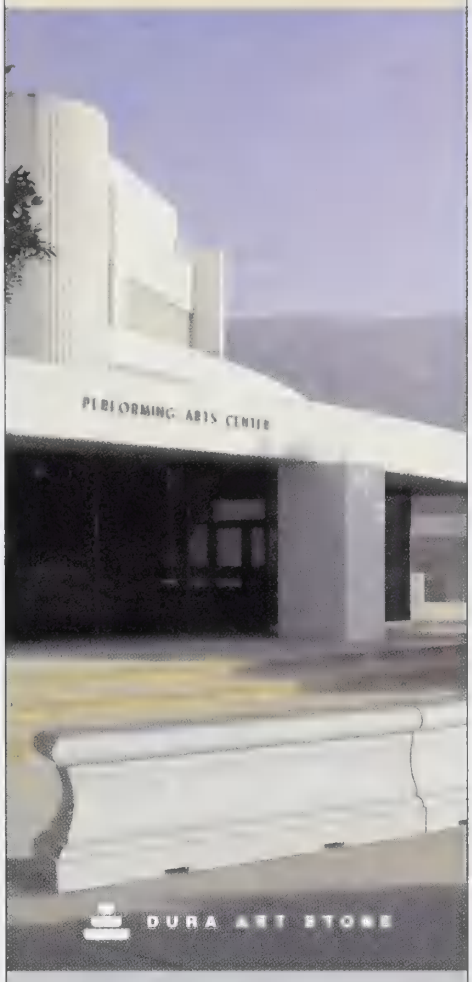
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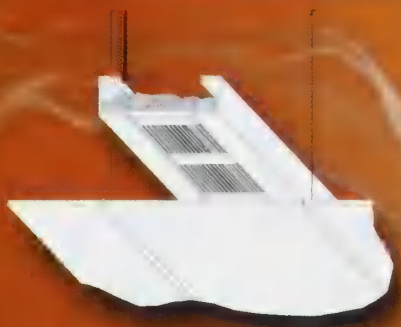


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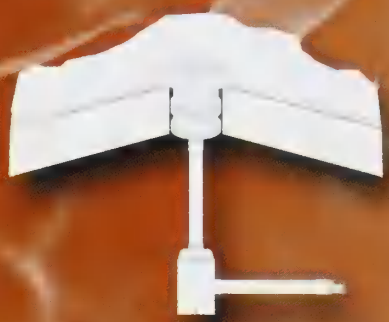
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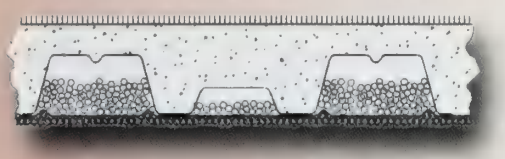
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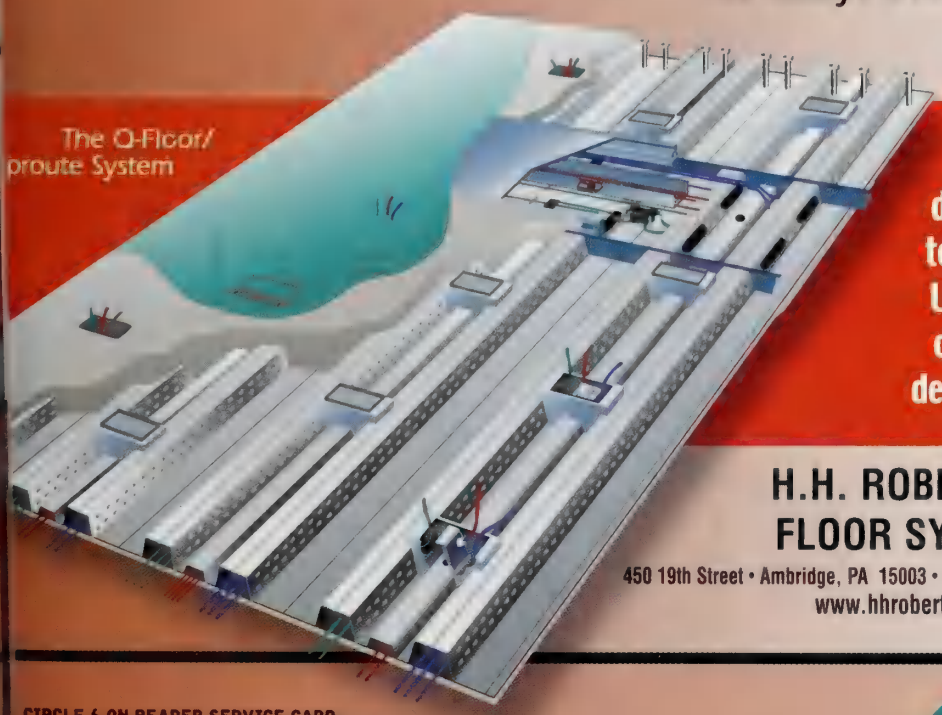
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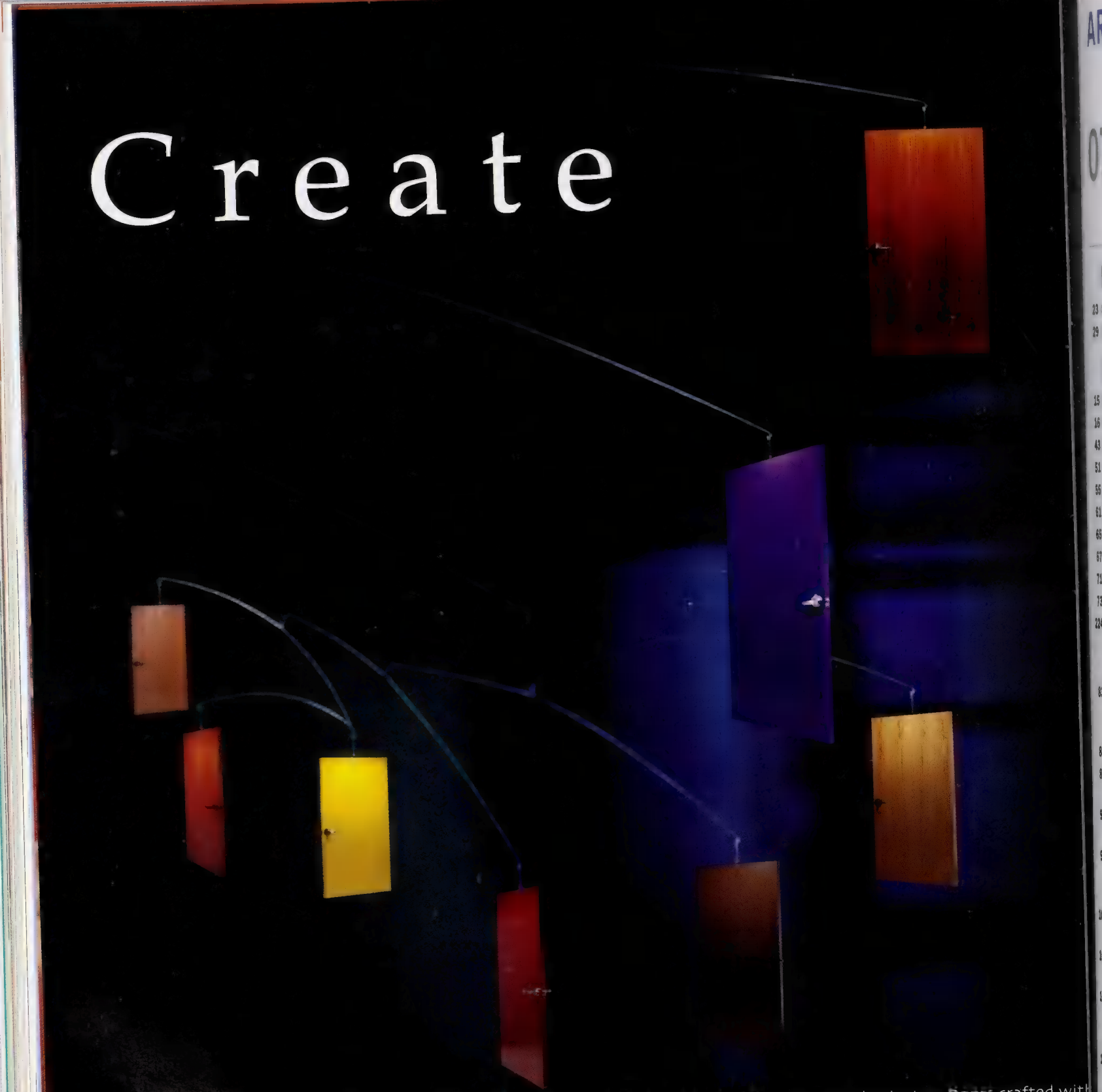
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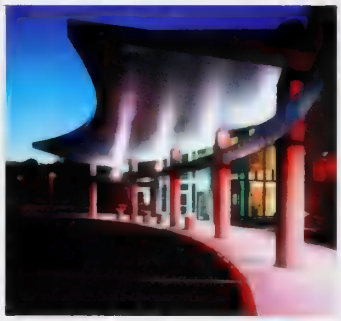
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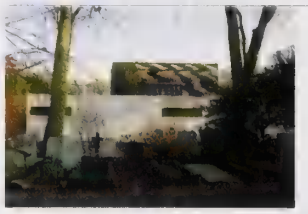
Check in to July's **Expanded Building Types Study** section showcasing a Web-only portfolio of health-care facilities in addition to the projects featured in the magazine. From Argentina to Kalamazoo, get project descriptions, plans, specs, photos, and links to people and products involved.

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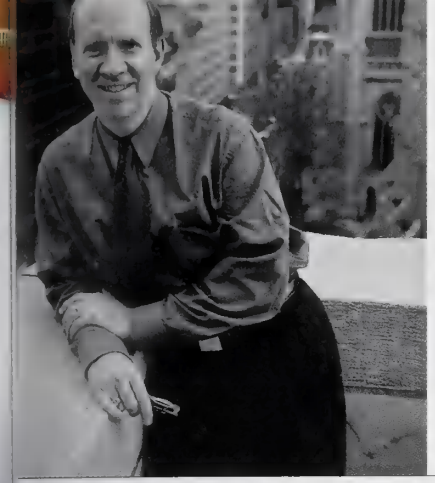


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A Singular Voice

Editorial

By Robert Ivy, FAIA

Outsiders say that architects spend too much energy giving each other prizes, but when Glenn Murcutt won the Pritzker Architecture Prize this year, you could almost hear the cheers. They came from architects throughout the world who admire his work, hail the timeliness of its selection at this cultural moment, and applaud the man himself.

In one sense, Murcutt represents the architect as strong individualist—a countertrend these days. In fact, to hear him speak, it is clear that he is a fighter for principles as much as a designer. While all of our responsible professional conversations tout collaboration, groupthink, and complexity, Murcutt practices architecture alone, out in the boonies, from a single small room. Although he and his wife, the architect Wendy Lewin, have worked together successfully on architectural projects and Murcutt has joined forces with other talented firms, it is his singular, prophetic voice from Down Under that demands attention.

What could be more "out there" than rural Australia? In fact, at a recent summer course at Harvard featuring architects who practice outside the centers of fashion, every head nodded when Murcutt's name came up. Brian Mackay-Lyons, whose life and work center on another semiremote terrain, Nova Scotia, summed up the sentiment in the room when he described Murcutt as a mentor for himself and for others like him. "He's my man," he said.

Architects around the world admire Murcutt's tough adherence to design ideals focused on specific place. The late J. Carter Brown, who chaired the Pritzker jury, encapsulated the winner's accomplishments in plain language: "He is an innovative architectural technician who is capable of turning his sensitivity to the environment and to locality into forthright, totally honest, nonshowy works of art."

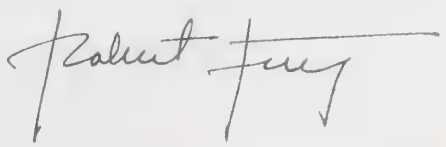
Murcutt has managed to blend contemporary architectural language and thought into structures that comfortably inhabit the Australian landscape. His presentations evoke the vivid contrasts and rich natural settings of the native provinces that he builds in. Although he has witnessed a proliferation of imitators, no one makes a Murcutt house better than Murcutt. Typically, in response to the landscape, the structures stretch horizontally, narrow shedlike forms perched just up off the earth, fully open along one dimension to admit light and air. Like articulated dragonflies, they appear to have zoomed in and alighted there.

A passionate environmentalist, the architect's concern extends to the materials he chooses to use, including galvanized iron, stone, glass, brick, and concrete. Few of his houses contain any form of mechanically tempered air, relying on orientation and prevailing breezes to do the work. Overhanging roofs, jalousies, operable window walls, and other strategically placed openings are accompanied by small stoves to take the chill off.

Unlike others who have broadened their palettes to encompass all types of work, who say "yes" to almost any job, Glenn Murcutt has limited his range. Houses for private clients have provided the bulk of his commissions, with only the occasional exception: The Boyd Education Center, produced in collaboration with Wendy Lewin and Reg Lark, has been hailed as a masterwork of congregate living, an unapologetically Modernist essay set in a fragile landscape.

Formally, Murcutt's work manages to incorporate regional influences without appearing regionalist. Informed by Mies and other Modern masters, spare and rigorously unsentimental in his designs, Murcutt has avoided the vernacular trap that lay at his doorstep. By aligning his projects with larger intellectual currents and interlacing the fabric of design with strong ideas, his work stands apart, both resolute and as light on the ground as he describes it.

How fitting that this tractor-driving, hardheaded, generous man, who never gave an inch, should be singled out at Michelangelo's Campidoglio in Rome. Sometimes awards can give a message, and the Pritzker for Murcutt cuts to the architectural core.



Letters

DEPARTMENTS

Criticism of criticism

In the film *What Happened to Kerouac?* Louis Armstrong is quoted as saying, "If you've never heard it, you'll never understand it." In architecture, I think some modern architects like Sullivan, Wright, Aalto, Kahn, Moore, Eames, and even Corbu, all heard it, saw it, understood it, did it, wrote about it, and then tried to teach or bring it to us.

The vapid book review of Christopher Alexander's *A Pattern Language* and *The Nature of Order* in your May issue [Commentary, page 93] firmly establishes that William Saunders and his ilk of misery will never get it, and therefore have little to contribute to the real challenges of our profession. Like a rat nibbling at left-out cheese, Saunders wastes over half of his diatribe on a superficial review of the 30-year-old *A Pattern Language* as weak setup to sucker punch the overtly personal *The Nature of Order*. Then, with blindfolds firmly in place—like a culinary critic who hermetically seals his nose and tongue in order to deny the experience of taste or smell—Saunders reveals simple ignorance as he slips into the ridiculous with statements such as, "The ideal life for Alexander is California/Mediterranean—comfortable, easygoing, sensuously pleasurable, communal, and full of leisure time." (Okay, so he is the editor of that East Coast university *Design Magazine*). In the end, unlike the naively flawed but intellectually generous books subject to his review, Saunders leaves us with absolutely nothing creative with which to move forward—except that we better make sure that "Deconstruction" is spelled properly and, of course, capitalized. Rather than providing insight or knowledge, Saunders chooses to leave us empty with a suggested vision of an architectural ideal that should ridicule and deny emotion, human experience, the search for beauty and the betterment of the human condition, only to wallow in a sea of his architectural mental masturbation and pseudo-intellectual elitism. (Okay, so he is the editor of …) Unlike the modern architects I mentioned above, William Saunders will never "understand it," because he simply can't see it, not without the intervention of the most gifted cranial proctologists on earth. But there is hope, for I know there are still some very "bright" minds at Harvard these days. Let's go surfing now!

—John M. Lucchesi, AIA
Calif.

Happy with Horyuji

What a pleasure to see the Horyuji treasure house on the cover of ARCHITECTURAL RECORD [June 2002], and inside, a beautiful description of one of the finest recent examples of modern architecture abroad or in Japan. I was deeply moved by the spare and serene perfection of this work during my first visit to Japan in the winter of 2000–2001, and I am thrilled that an American magazine has honored it. Thank you.

—Wendell Burnette
Phoenix, Ariz.



Immaculate spaces

I would like to share some of my thoughts on ARCHITECTURAL RECORD that I have been building up in my mind for some time. Firstly, I would like to assure you that I think the magazine is the best it has ever been.

Now to my point in writing. I remember when I was a small child, and some of my happiest times were my visits to my grandparents' house. The house had a fairly large living room with a pair of French doors with many small glass panes.

The real point of this story is what I saw through the glass. As the years passed, every time I looked, the room was always the same. The room and its furnishings never changed, because no one was allowed into the room.

What brought on this childhood memory was looking at the many photographs of building interiors in your issues. They are usually well-designed spaces, but they are so pristine, so immaculate, so sharp and precise, and so *empty*. They are almost always devoid of any human content. It is as if I am again looking with my nose to the glass at a lifeless space.

I was taught, and I have always believed, that the beauty of our profession is the fact that we are the only major art to respond to the needs of people. In fact, those projects you feature do this well enough to win awards for their design, but why are we afraid to show the people *using* the spaces?

That is the true measure of their design. People lend not only scale to a space, but they add *life*—and that's what we are all about.

—David R. Dibner, FAIA
McLean, Va.

Visions appreciated

Robert Ivy's editorial in the May 2002 issue [page 23] is at once expansive, refreshing, and visionary. It is well worth reading over again, as I have done several times.

I can only hope the commissioning authority for the World Trade Center, when chosen, can look at the big picture, the international one included. September 11 shook and tore at the very foundations of free society across the world.

—William Schnabel, AIA
Sydney, Australia

One size doesn't fit all

I wanted to thank you for your great article regarding small, medium, and large firms ["Is Growth a Burden or a Blessing?" May 2002, page 190].

As a recruiter for a consulting firm, I find that my clients want success and profitability, but often it is their core staff who suffer, with long hours and little pay. While most of the architects I interview are very passionate and committed to a career in architecture, they continually ask me, "Is it possible *not* to work 70-hour weeks?"

For a profession as complex as architecture, a profession that requires training comparable to that of a physician, you would think we could find a way to reward members of the industry for all their hard work. They must love it for the work, since the salary is almost insulting.

I imagine this will be discussed over and over in the years to come. Maybe there will even be solid solutions. Until then, I thank RECORD for recognizing that there are people performing this work, not machines.

—Mindy L. Weiss
Granet & Associates
Santa Monica, Calif.

Corrections

In the Timothy Dwight Elementary School feature in our February 2002 Issue, we failed to include TAMS Consultants as the architect of record [page 104]. In our "Small, Medium, and Large" feature in the May 2002 issue [page 190], the architecture and engineering firm HarleyEllis should have been listed as located in Southfield, Michigan. In June 2002 News, in the article entitled "Plans for Pentagon Memorial Competition" [page 37], a Web site's URL should have been listed as http://pentagonmemorial.nab.usace.army.mil.

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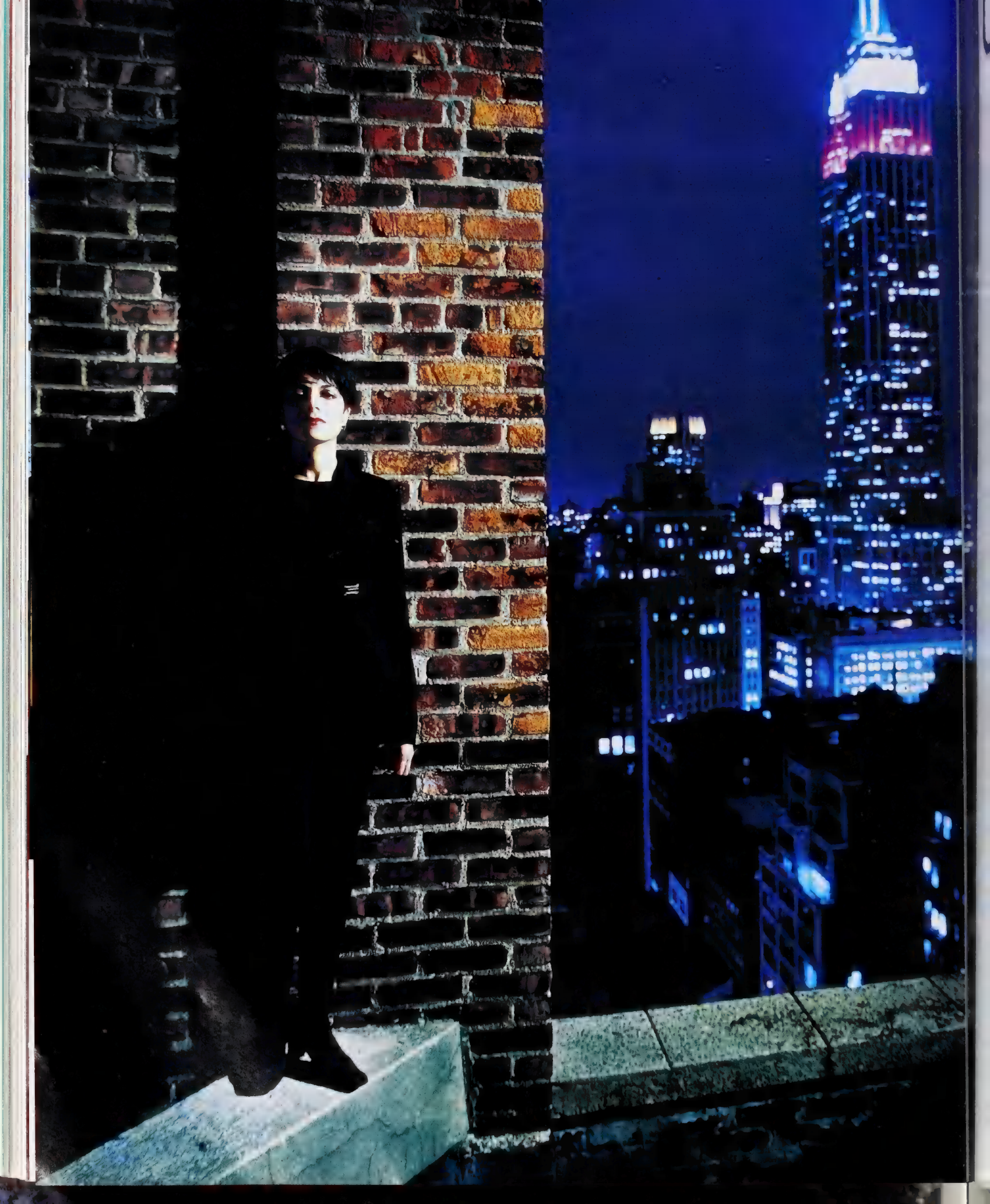


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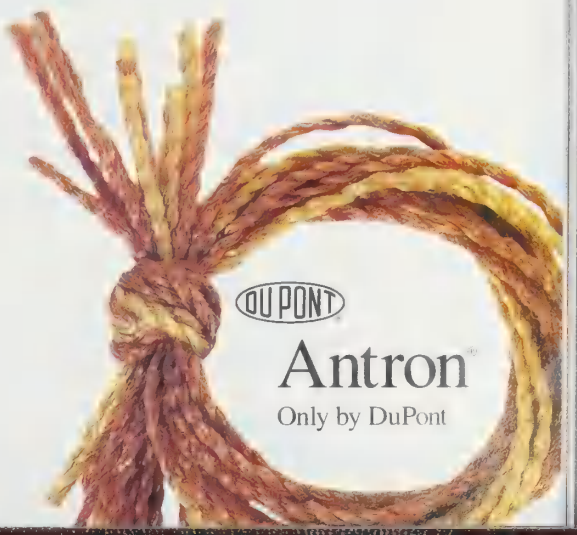
t isn't seeing shadows in the light,

it's seeing light in the shadows.

Shashi Caan, Associate Partner, Skidmore, Owings & Merrill
On light, skyscrapers and sustainability:

"These buildings simply take your breath away, but it's the streets we walk on, the in-between places, the shadows and voids that really make the buildings soar. Seeing shadow allows us to experience light. And to experience what is made by man we must appreciate what the earth provides."

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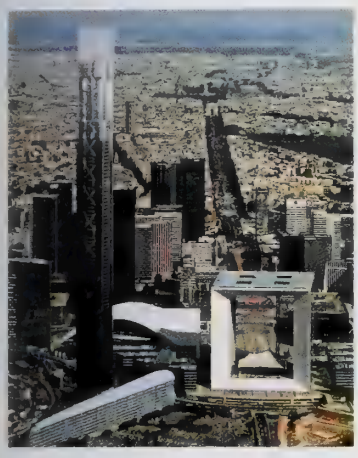
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Record News

Highlights Piano adds to Meier p. 24
ARE pass rates increase p. 29
Safdie in Jerusalem, Kansas City p. 31
Endangered places named p. 38

SPECIAL REPORT



SOM's design may resemble Nouvel's 1988 Tower of Infinity (above, unbuilt).

SOM designs WTC skyscraper for Silverstein

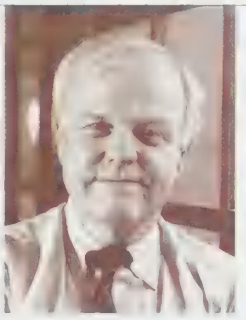
Although Beyer Blinder Belle is developing a World Trade Center (WTC) site master plan for the Port Authority and the Lower Manhattan Development Corporation (see interview, below, and commentary, page 124), WTC leaseholder Larry Silverstein has his own plans to throw in the mix.

The New York office of Skidmore, Owings & Merrill (SOM), led by partner David Childs, FAIA, has been working for Silverstein since last fall and has developed a general land-use plan that includes a skyscraper that would be comparable in height to the WTC towers.

As RECORD contributing editor Blair Kamin, architecture critic of the *Chicago Tribune*, originally reported in the *Tribune* on June 6, the tower would be approximately 1,300 feet tall (the WTC towers were 1,368 and 1,362 feet tall, respectively) with up to about 70 occupiable floors and another 40 floors of structural skeleton that could be lit from within. The form of the tower would change from rectangular at the base to more rounded near the top. Childs shared the plans with Kamin this spring.

Childs's design is for a tall landmark that would allow for dramatic lighting at the top yet acknowledges that office space above the 70th floor would be difficult to lease, especially at the WTC site. The concept for the top of the tower would resemble a design by Jean Nouvel (left) for the Tower of Infinity, planned for Paris's La Defense in 1988 but never built.
John E. Czarnecki, Assoc. AIA

Beyer Blinder Belle partners talk to RECORD about momentous undertaking—the Lower Manhattan plan





Jack Beyer (left) and John Belle.

A team led by Beyer Blinder Belle with Parsons Brinckerhoff was selected in May to develop a master plan for the World Trade Center site, taking into consideration all of Lower Manhattan, for the Port Authority and the Lower Manhattan Development Corporation (LMDC). The urban design team is releasing six alternative plans this month, and the final master plan will be complete by the end of the year. As they began the planning process in June, Beyer Blinder Belle partners Jack Beyer, FAIA, and John Belle, FAIA, spoke with RECORD news editor John Czarnecki.

ARCHITECTURAL RECORD: *In a planning project of this scale and complexity, what models or precedents are you looking at?*

JACK BEYER: London and Berlin, devastated by the Second World War, are the two cities that we applaud as inspirational. These two great cities have demonstrated successful recovery and a constructive attitude toward development and contemporary technology within transportation, planning, and architecture. We feel that there is a lot to learn there because of the nature of the tragedy that they survived.

RECORD: *In terms of your firm, are all three of the name partners working on this project?*

JOHN BELLE: Yes, Jack is the partner in charge and devoting his full time to it. I'm spearheading the urban design component. Dick (Blinder) is heading up the cultural-institution component of it, even though we're not quite sure what that is yet.

RECORD: *How many people on staff are going to work on this project?* in

BEYER: It's growing. To put a number on it is very hard because it's evolving and changing. Although we have a contract, it's such a fluid, expanding series of tasks that it's hard to say.

RECORD: *Your six alternatives may include residential, office, retail, and institutional uses—can you say how much of each use will be proposed?*

BELLE: It's unknown.

RECORD: *Unknown to the public until alternatives are presented in July, but to what degree has a program of uses been defined at the onset by your client, the Port Authority and the LMDC?*

BELLE: We'll look at a wide range of ideas that will absolutely include a multitude of uses and a variety of quantities of uses.

RECORD: *SOM has already completed planning work (see story, above) for the site for Larry Silverstein, the leaseholder. How does that work influence what you are doing now?*

BELLE: We're going to have a briefing, and we can take it all under advisement.

RECORD: *It's simply under advisement?*

BELLE: Absolutely.

RECORD: *Critics say that your firm, which completed the renovation of Grand Central Terminal, is more experienced in historic preservation work than urban design and planning. How do you respond?*

BELLE: It's such a narrow interpretation of what we do. Grand Central happens to be a great civic project that has tremendous complexity. Labels are very convenient, but sometimes they're very inaccurate.

RECORD: *Herbert Muschamp,* The New York Times *architecture critic, wrote a very critical piece about your firm's selection in May. Terence Riley, chief curator of architecture and design at MoMA, was quoted in a June article in* New York Newsday *as saying, "Nothing gives me the confidence that the result will be something worthy of New York." Do you have any response to that harsh criticism?*

BELLE: Nothing whatsoever.

OFF THE RECORD

Santiago Calatrava has been selected to design a $240 million concert hall for the Atlanta Symphony Orchestra. He was chosen in a competition over finalists Bing Thom, of Vancouver, British Columbia, and Schmidt Hammer & Lassen, of Denmark.

New York's Lincoln Center has selected three finalists—Steven Holl, Thom Mayne, Richard Meier, and Arata Isozaki—for the redesign of Avery Fisher Hall, home of the New York Philharmonic Orchestra. The finalists will develop design proposals and present their schemes in September. They were selected from a field that had included Christian de Portzamparc, Toyo Ito, Rem Koolhaas, Jean Nouvel, and Skidmore, Owings & Merrill.

Target Store has announced the Michael Graves Dream House Sweepstakes. Each couple registered in Target's wedding-gift registry from March 1 to the end of the year is eligible to win a house designed by Graves.

Although it doesn't have a major-league team yet, the Virginia Baseball Stadium Authority has named four finalists for the design of a new ballpark in Northern Virginia—HKS of Dallas; CDFM of Kansas City, Missouri; HOK, Kansas City, Missouri; and LDA Companies, Pittsburgh, with Robert A.M. Stern Architects, New York.

New York's Whitney Museum of American Art is planning a John Heiduk retrospective show, September 21, 2002, to January 5, 2003, and the first American museum show of the work of Diller + Scofidio, March 1 to June 1, 2003.

J. Carter Brown, director of the National Gallery of Art in Washington, D.C., from 1969 to 1992, chair of the Commission of Fine Arts for 30 years, and a Pritzker Prize juror, died June 17 at age 67.

Piano addition for Meier's High Museum

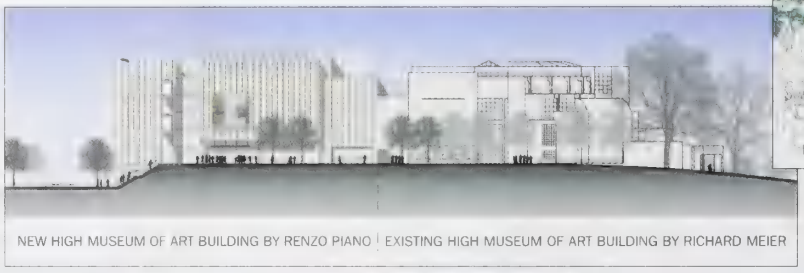


Meier's High Museum (above) will have a significant addition by Renzo Piano.

Renzo Piano has unveiled his design for a $130 million expansion of the High Museum of Art and Woodruff Arts Center in Atlanta. The plan adds three new buildings to Richard Meier's 1983 white enamel-panel-clad building, considered one of his signature works. Piano was selected after a brief search, and Meier was not consulted by the museum about the expansion. Completion is planned for 2005.

More than doubling the existing museum space, Piano's design encompasses a main pavilion, a special-collections building, and an administrative-office building that will be the same height as the Meier building. The main pavilion will feature a light-filled lobby with outdoor terrace, retail shop, coffee bar, and visitor amenities. Glass-enclosed bridges will link the main pavilion to the Meier building at the lobby level and on the top floor, as well as link the second and third floors of the main pavilion and special-collections building. Top-floor galleries in the two buildings will house part of the museum's permanent collection. Temporary exhibitions will be on the main pavilion's second floor.

Clad in Marmarino, a light-colored plaster mixed with marble dust, the addition will form a "village of the arts" surrounding Meier's flagship with a series of piazzas and terraces connecting the buildings. A new residence hall and sculpture building for the Atlanta College of Art, also designed by Piano, are under construction nearby. *William Weathersby, Jr.*



NEW HIGH MUSEUM OF ART BUILDING BY RENZO PIANO | EXISTING HIGH MUSEUM OF ART BUILDING BY RICHARD MEIER



The Piano addition (above) will include an outdoor terrace next to the museum.

37-story Bank One Tower remains shuttered in Fort Worth

No gem to begin with, the Bank One Tower (as seen in 2001, below) has now become an eyesore, looming over downtown Fort Worth with Darth Vaderish menace. Since being hit by a tornado in March 2000, the 37-story glass skyscraper designed by John Portman has stood boarded up and empty—a truncated rocket without a mission.

Although the tornado blew out most of the tower's windows and interior walls, it did little structural damage. Still, the estimated $25 million cost of renovation was too steep for the owners, Loutex Fort Worth, who last year sold the tower for $3.8 million to a real estate partnership controlled by billionaire Ed Bass. Bass's Sundance Square, a collection of themed shops, restaurants, theaters, and clubs, has sparked the revitalization of downtown Fort Worth. To protect this investment, Mr. Bass pledged to demolish the vacant tower within months.

Then came unanticipated asbestos problems, compounded by the reluctance of insurers to cover the demolition of such a large building. Preservationists became alarmed that an implosion would damage neighboring historic buildings, fears that only intensified after September 11. "Implosion was the preferred approach early on," says Bill Boecker, president of Sundance Development Corporation, "but it quickly became a nonoption. We're trying to figure out how to dismantle the tower piece by piece, which will be slow and expensive."

Bank One has since moved into a building across the street, also owned by Bass, who has been pressuring the city to share the costs of deconstruction. In the meantime, the rotting plywood panels are being replaced with metal, which gives the tower a deceptive sparkle. ***David Dillon***





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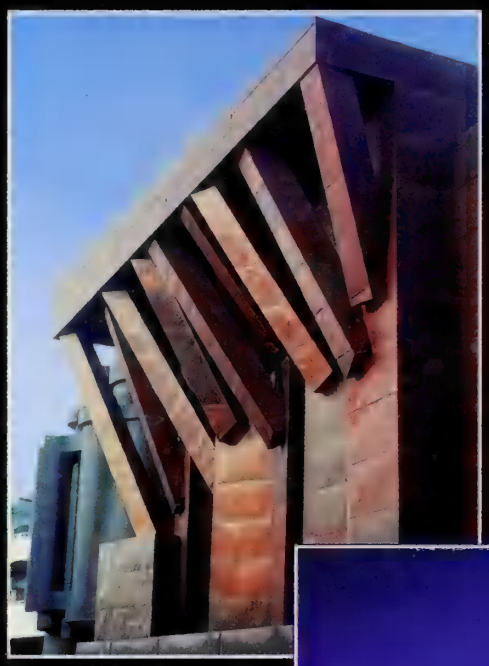
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Designing with copper?



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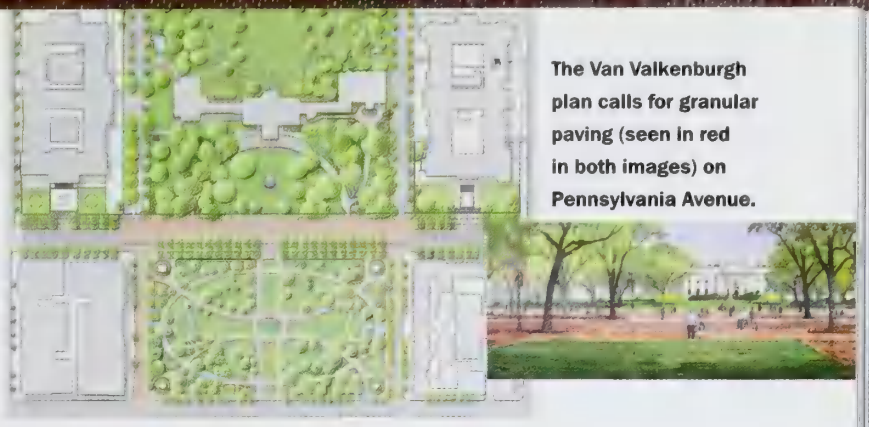
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The Van Valkenburgh plan calls for granular paving (seen in red in both images) on Pennsylvania Avenue.

Van Valkenburgh plan for Pennsylvania Avenue selected, awaits Bush approval

The National Capital Planning Commission (NCPC) voted unanimously in June to select a landscape design by Michael Van Valkenburgh Associates of New York City for a pedestrian adaptation of the part of Pennsylvania Avenue directly in front of the White House.

The NCPC expects to present the plan to President Bush and Congress for approval this fall and have the landscape complete in time for the January 2005 presidential inauguration.

Blocked with Jersey barriers and police cars, the avenue has not been open to vehicular traffic since President Clinton ordered it closed in 1995 after the Oklahoma City bombing.

Van Valkenburgh's design would turn the two-block stretch of the avenue into a plaza lined with elm trees. It would be paved in granite in the areas in front of the Treasury and Old Executive Office buildings, with granular paving in front of the White House. Steel posts and guardhouses would protect the entrances to the plaza at either end. What was once a six-lane avenue would only have an access lane for emergency vehicles and perhaps a tourist trolley. The plan allows for the street to be converted, through movable street furniture, from a pedestrian plaza for tourists to a parade route for inaugurations and other major events. The NCPC approval acknowledges that Pennsylvania Avenue, formerly a busy thoroughfare, will not reopen to vehicular traffic in the foreseeable future.

"I have been to Washington a few times since September 11," Van Valkenburgh says. "The feeling there is that there has been a loss of civic dignity in this place between the White House and Lafayette Park. For our firm, what was most important was that we reclaim that sense of dignity."

The Van Valkenburgh plan was chosen in an invited competition that included EDAW, Balmori Associates, and Peter Walker and Partners. *Kevin Lerner*



SOM to renovate Museum of American History

The New York office of Skidmore, Owings & Merrill (SOM) has been selected for a renovation of the Smithsonian's National Museum of American History (above) in Washington, D.C. The 38-year-old, five-story building will undergo a dramatic revamping with a reconfigured central area and exhibition spaces, and upgraded amenities.

SOM, led by partner David Childs, FAIA, will address a series of problems raised by a "pre-concept" study performed by Dahlin Group of San Ramon, California, in 2001. Recommendations include improved visitor circulation, better lighting, and enhanced public facilities, such as rest rooms and restaurants.

The top priority, however, is redesigning the museum's three-story central core, which encompasses the two main entrances on the first and second floors and the third-level space immediately above the entrances. Also, SOM must create a phased project plan that enables the museum to stay open during construction, and they must provide concepts for the building's new look.

Although design work began in spring, no date has been set for the project's completion, nor has its cost been determined. SOM will develop cost estimates, and the museum will undertake a fund-raising campaign in 2003. *Tony Illia*

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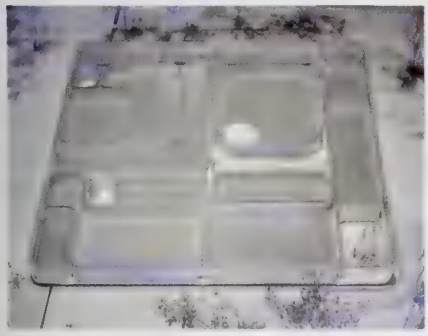
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Toledo Museum of Art Center for Glass will be first U.S. building by Sejima and Nishizawa



Drawing on its hometown's reputation as the historic Glass Capital of America, the Toledo Museum of Art has announced conceptual plans for a building to house its new Center for Glass. The $25 million, single-story glazed structure will be the first American design realized by Tokyo-based firm SANAA, headed by Kazuyo Sejima and Ryue Nishizawa.

The Center for Glass will house the museum's extensive glass collection in a combination of traditional exhibition spaces and denser, open storage areas that will make between 8,500 and 9,000 objects available for public study and research. A full-scale glass-making facility will also form an integral part of the center. "We put the more dramatic activities on the ground floor so that people can see the glass being made as part of the experience," explains museum director Roger M. Berkowitz.



The center (top and above) will be a glazed structure with a glass-making facility.

Consistent with much of Sejima and Nishizawa's previous work, early images of the center depict an almost invisible structure that quietly dissolves into the landscape. A mix of glass types will be utilized in the final design, according to Berkowitz. "Some will be transparent, some will be translucent, some will be opaque," he notes.

The Center for Glass will stand in a wooded park opposite the museum's original 1912 Neoclassical white marble building with a 1992 lead-coated-copper–clad addition by Frank Gehry. This new center extends the museum's strategy of creating an arts campus, which also includes the Art Deco Professional Arts Building and a sculpture garden located along the edge of Toledo's trendy Old West End—an enclave of predominantly Victorian homes built at the turn of the last century.

The center is expected to open in 2004. *Edward Keegan*

ARE pass rates increase in three divisions

Candidate pass rates improved in three divisions (denoted in blue) of the Architect Registration Examination (ARE) in each of the past four years. The statistics are for first-time and repeat test takers combined.

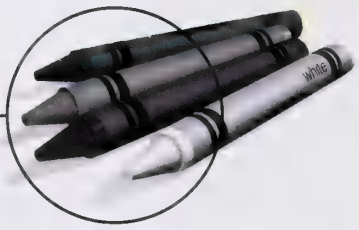
ARE PASS RATES BY DIVISION

	1998	1999	2000	2001
MULTIPLE CHOICE DIVISIONS				
Pre-Design	63%	69%	73%	76%
General Structures	71	74	76	76
Lateral Forces	81	86	88	90
Mechanical and Electrical Systems	80	85	77	73
Materials and Methods	88	89	90	90
Construction Documents & Services	82	84	85	86
GRAPHICS DIVISIONS				
Site Planning	71	72	72	64
Building Planning	70	69	61	62
Building Technology	72	75	78	67

Source: NCARB

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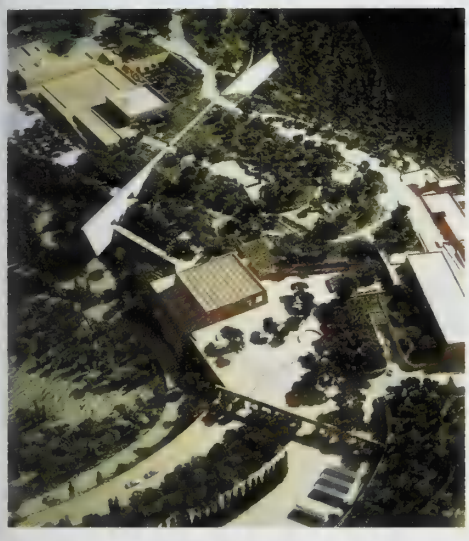
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Safdie expands Jerusalem Holocaust memorial

A long triangular prism that pierces a Jerusalem mountaintop will serve as the new historical museum of Israel's main Holocaust memorial. Boston-based Moshe Safdie and Associates designed the $50 million expansion for the Yad Vashem Holocaust Martyrs' and Heroes' Remembrance Authority to accommodate more than two million annual visitors.



A prismatic structure will cut through the hillside.

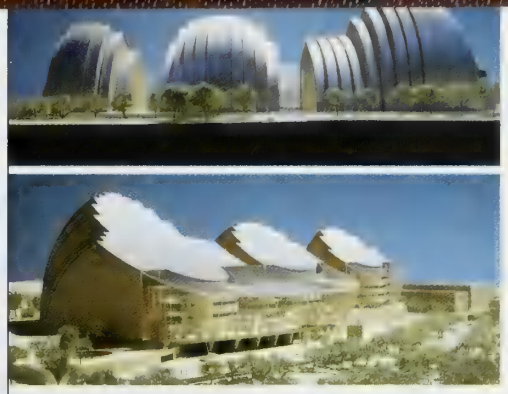
Bare, cast-in-place concrete forms the skylit prismatic structure, which is 656 feet long and 59 feet tall and posttensioned to support the cantilever and prevent cracks. Visitors will pass through the structure, emerging at a winged opening with views of the Jerusalem hills.

Near the end of the museum, the Hall of Names, a conical building, houses the personal records of all known Holocaust victims. Faces and personal testimonies are printed on the glass lining. A reciprocal underground cone, dug into the bedrock, commemorates those whose names will never be known.

The expansion includes an entrance plaza and reception building, galleries for Holocaust art and temporary exhibitions, and underground parking.

Safdie said he used a "topographic strategy" that "respects the natural state of the mountainside" yet enables visitors to remain on a horizontal plane as they move around Yad Vashem. Thus, visitors will ascend and descend only once as they visit the main buildings on the 50-acre site.

Construction, which began in 2001, will be completed by January 2004. *Esther Hecht*



Stainless-steel walls will curve up the back of the theaters (top), which share a lobby.

$304 million Kansas City performing arts center by Safdie

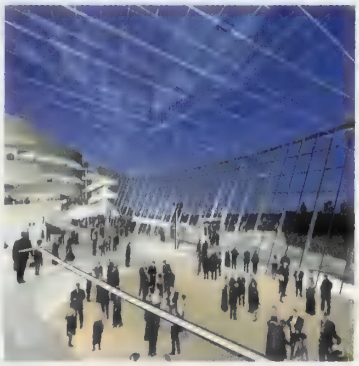
Moshe Safdie, FAIA, unveiled a striking, three-part design in May for the Metropolitan Kansas City Performing Arts Center. Construction on the $304 million building will begin in spring 2004, with completion by 2007.

The center will include three concert halls—a 2,200-seat ballet and opera house, an 1,800-seat concert hall, and a 500-seat experimental theater. The ballet/opera house and the concert hall are planned for the first phase, but the experimental theater will be part of a future phase of development. Safdie is working with Theatre Projects Consultants and acoustical specialist Artec Consultants.

Located on roughly six hillside blocks bordered by 16th and 17th Streets, Baltimore Avenue and Broadway, the complex will have north-facing reflective stainless-steel roofs (top photo) that are punctuated by acid-etched, limestone-colored precast-concrete perpendicular walls. The roofs intersect with a curved glass roof covering the foyer, enclosed by an outwardly inclined and curved glass wall.

Visitors will enter the building through a lower lobby and ascend to the main lobby, and to a café and restaurant, via a grand stair or elevator. In the lobby, continuous curved, stacked balconies (below) will be sheathed in beech panels.

Fund-raising for the center officially began in May, but local foundations have already pledged more than $105 million. The center's board chair, Julia Irene Kauffman, has pledged $80 million from the Muriel McBrien Kauffman Foundation, which she heads. *J.E.C.*



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Norten's design (top and above) resembles a prow.

Norten's TEN Arquitectos win Brooklyn library competition

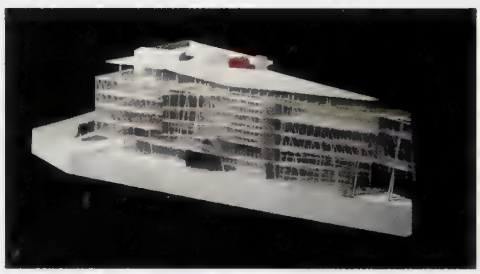
Mexican architect Enrique Norten of TEN Arquitectos received his first commission for a building in the United States this spring when he was selected as the winner of an international competition by the Brooklyn Public Library to design its 150,000-square-foot, $75 million Visual and Performing Arts Library. The triangular site, at a V-shaped crossroads near the intersection of Flatbush and Atlantic avenues in Brooklyn, will be a public anchor in the new Brooklyn cultural district that is being master planned by Rem Koolhaas's OMA and Diller + Scofidio.

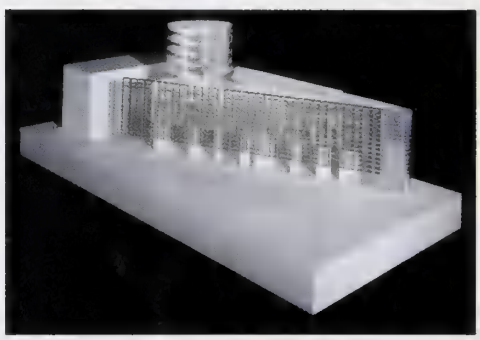
The competition was funded by the National Endowment for the Arts New Public Works program, which attempts to foster innovation and quality in public architecture. It attracted submissions from premier architects around the world. Norten was selected from among three other finalists: Jean Nouvel of Paris, Huff + Gooden Architects of Charleston, South Carolina, and Rafael Viñoly Architects of New York. Construction is scheduled to begin in 2005 and finish in 2007.

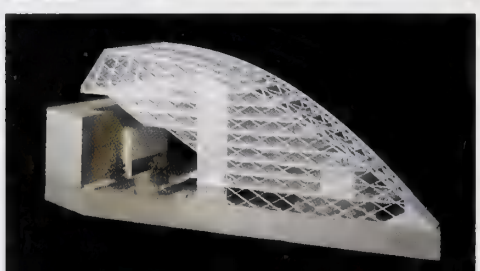
The competition called for a community resource to house visual and performing arts materials around themes of transparency, permeability, and access. Conceived as a hub for Brooklyn's burgeoning arts scene, the building will hold a media lounge, reference collections, art studios, and spaces for community programming.

When seen from above, Norten's model is shaped like a skewed V that tapers from the roof to create a semisculptural prow. The area nested inside the V-shape will have steps to a plaza and frame views of the Brooklyn Academy of Music.

The walls of the Norten building will essentially be two layers of glass, with louvers between layers to reduce energy consumption and control the amount of light that enters the building. The transparency will allow multiple interior views and create what TEN Arquitectos has called "a spontaneously evolving collage of space." *Tess Taylor*







Competition finalist schemes by (left, from top): Huff + Gooden, Jean Nouvel, and Rafael Viñoly.



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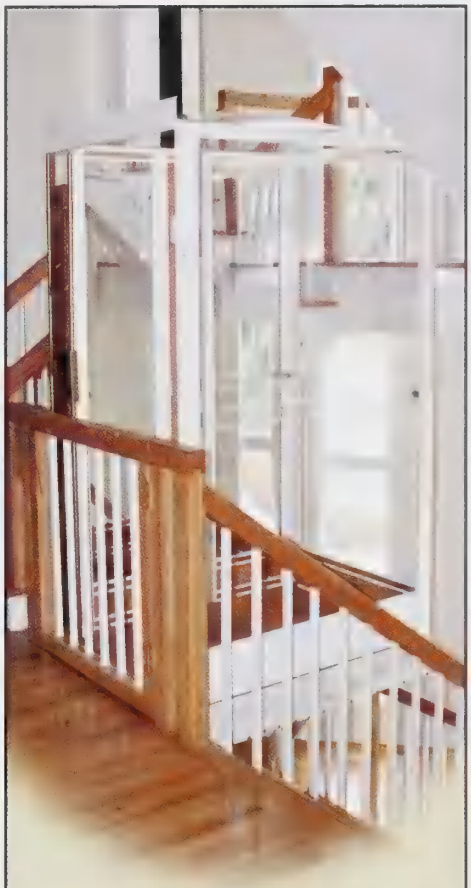
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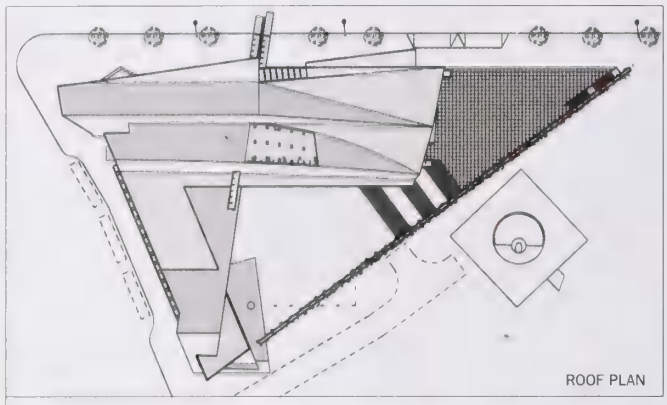
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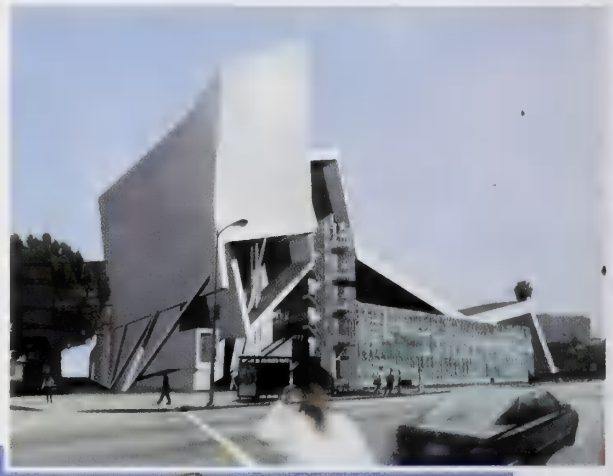
A series of folding planes by Morphosis form Los Angeles Children's Museum

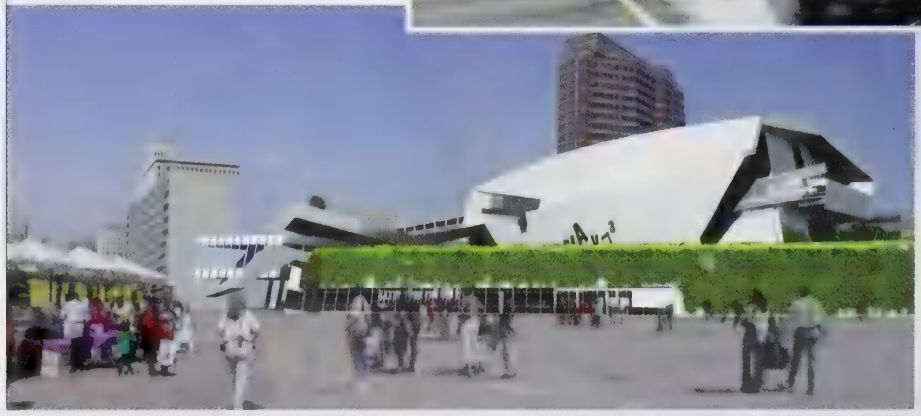
The first museum project by Santa Monica–based Morphosis soon may become a reality in downtown Los Angeles. Plans for a $27 million Los Angeles Children's Museum, to open in 2005, have been approved, although questions remain about the chosen site—an area of the Little Tokyo district adjacent to the Museum of Contemporary Art's Geffen Contemporary and the Japanese-American National Museum.

Destined for a triangular site at the corner of Temple and Judge John Aiso streets, the 100,000-square-foot structure will include five exhibition galleries, a theater, café, store, and a protected playground. The design is in the form of a V, with the axes running along the two streets. A long, low, ivy-covered wall separates an interior courtyard from a planned 3-acre park that also would be accessible from the other two museums in the complex. Emerging from underground parking, visitors would move from the park to the courtyard to the museum itself.

Morphosis' principal architect, Thom Mayne, conceived the project as a series of folding planes, similar to an origami sculpture. This motif is visible in the subordinate axis with its low, zigzag roofline, as well as in the ridged white metal covering of the principal axis, which is supported by narrow, canted columns.

At the heart of the design is a five-story atrium spanned by a series of long, glassed-in ramps, parts of which project through the structure and cantilever over the street. According to Mayne, "This helps establish a dialogue between the children and the urban context of the museum." Another unusual feature is a large glass structural wall at street level enclosing the building's cooling system. From the street or from within the gift shop and café, observers can watch water cascade down the interior surface onto a series of coils at the bottom. "I was trying to create a building that was didactic, that participated as part of the exhibits," says Mayne. *David Maurer*





A "V" in plan (above), the museum's exterior resembles a series of folding planes (right and below).



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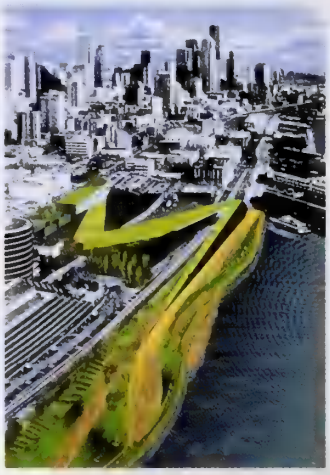
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Weiss/Manfredi develops plans for Seattle sculpture park

Hailed as a new urban model for sculpture parks, as well as the city's future green heart, the Seattle Art Museum (SAM) unveiled plans by New York's Weiss/Manfredi for the Olympic Sculpture Park. The $60 million project will be located north of the central business district on Seattle's last undeveloped waterfront property—an 8.5-acre industrial site sliced by train tracks and an arterial road. The design consists of a continuous plane for sculpture that rises over the existing infrastructure to reconnect the urban core to the revitalized waterfront.



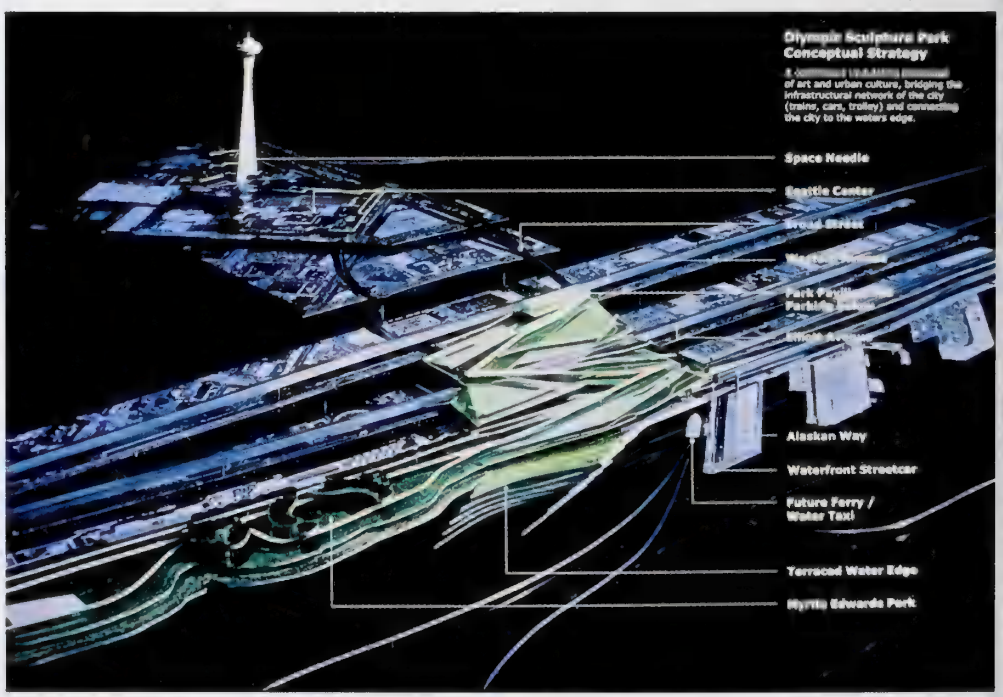


The park (top) will include a pavilion (above) for exhibitions and programs.

The museum will be a welcome addition to Belltown, the city's fastest-growing and most densely populated neighborhood, with the least amount of open space. Plans call for a transparent pavilion for exhibitions, performances, and educational programming at the site's high point. A descending Z-shaped pedestrian route will traverse a 40-foot drop from the city to the water, capitalizing on views of the skyline and Elliott Bay. The footpath will connect three new gardens that represent archetypal Northwest landscapes: a dense temperate evergreen forest of fir trees, cedars, and ferns; a transitional deciduous forest of oaks, aspens, and maples; and shoreline aquatic terraces of kelp, algae, and underwater grasses to harbor salmon.

The park's grassy slopes will feature rotating works from the museum's collection, specially commissioned pieces, and ephemeral installations that draw on the urban texture and regional environment. "It has long been part of our mission to break down the barriers of the museum walls, and this design has made it a reality," says Mimi Gates, director of SAM.

The park's completion, expected in 2004, is contingent upon the route chosen (most likely a tunnel under the park) for the replacement of the Alaskan Way Viaduct damaged by the April 2001 Nisqually earthquake. *Sheri Olson, AIA*



Weiss/Manfredi's park design connects the waterfront to key components of the city.

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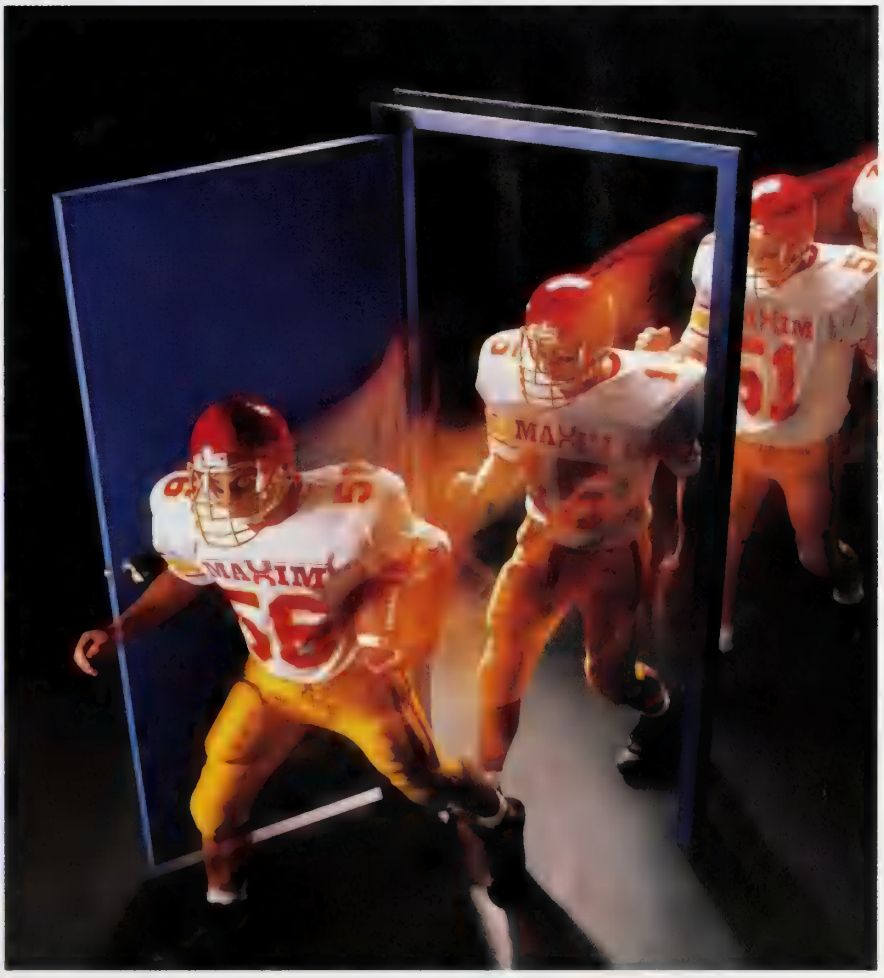


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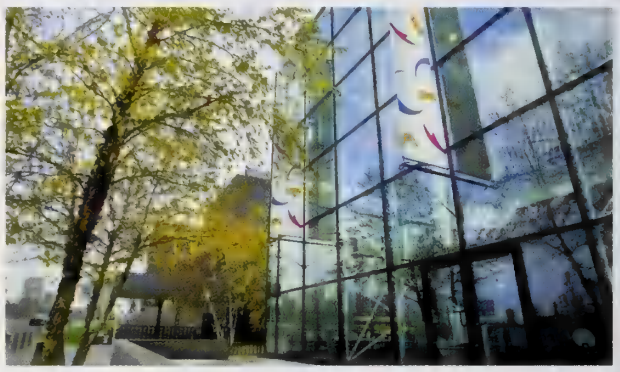
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Endangered places include (clockwise from top) the Gold Dome Bank, teardowns in historic neighborhoods, the Guthrie Theater, and Pompey's Pillar.



National Trust names 11 most-endangered historic places

The National Trust for Historic Preservation has announced its 2002 list of America's 11 most-endangered historic places. This year's subjects vary widely, from specific structures to entire groups of buildings, such as the designated "Teardowns in Historic Neighborhoods Nationwide" that are included on the list.

The Trust identified more than 100 neighborhoods in 20 states where older houses, from bungalows to 19th-century Victorians, are being replaced by larger, out-of-scale "McMansions." The designation mentions the demolition of such noted houses as Richard Neutra's Maslon House in California [May 2002, page 46], but broadens the scope to include entire historic neighborhoods.

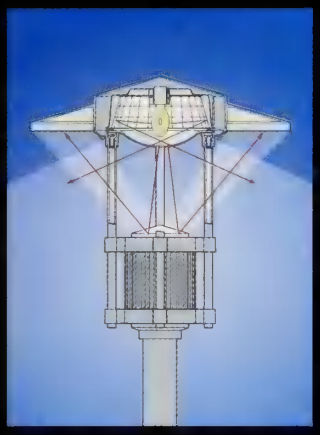
The Guthrie Theater in Minneapolis, designed by Ralph Rapson and built in 1963, made the list because the Walker Arts Center plans to tear it down [March 2002, page 24]. The plans call for the theater, renowned for its acoustics and intimacy, to be replaced with a parking garage and sculpture garden. Demolition permits were granted in late 2001.

Oklahoma City's Gold Dome Bank, completed in 1958 by local architect Robert B. Roloff, was one of the first examples of the use of a geodesic dome in architecture. The building has always been a bank, and its current owner, Bank One, wants to tear it down and replace it with a boxlike bank and drugstore. Bank One claims the dome needs more than $1 million in repairs.

The other sites on the list are St. Elizabeth's Hospital in Washington, D.C., the Hackensack Waterworks in New Jersey, Kw'st'an Native American sacred sites in California, the Chesapeake Bay skipjack fleet, Pompey's Pillar in Montana, Missouri River cultural and sacred sites, Rosenwald schools throughout the South, and the historic bridges of Indiana.

Inclusion on the list is not a guarantee that a structure will be saved, since the National Trust offers no legal protection. *K.L.*

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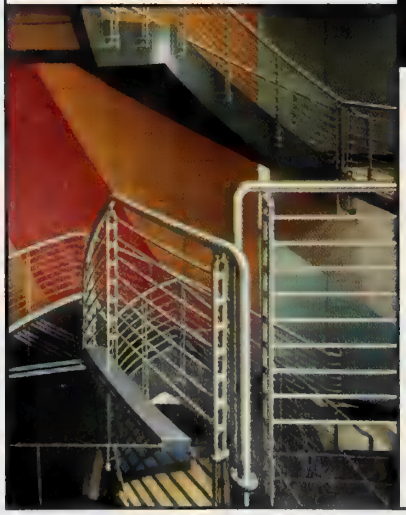
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Dates & Events

Ongoing Exhibitions

The Nature of Architecture: Photographs by Amy Lamb
Washington, D.C.
Through July 26, 2002
In former biologist Amy Lamb's latest exhibition, she unveils the underlying similarities between organic form and the built environment through a series of photographic interpretations that illustrate the relationship between the two. At the Octagon. Call 202/626-7486 for further information.

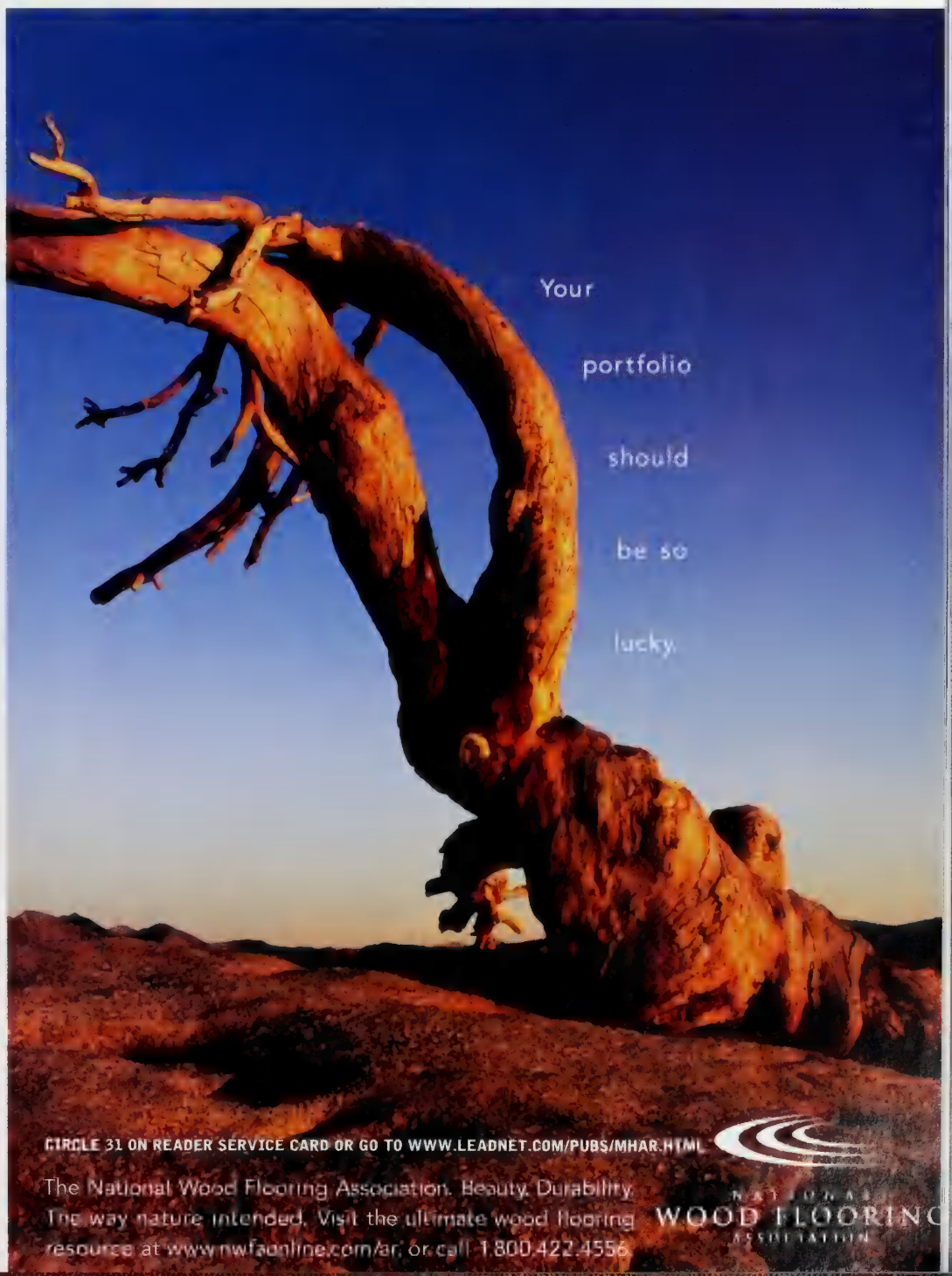
Museums for the New Millennium: Concepts, Projects, Buildings
Milwaukee
Through August 4, 2002
This exhibition presents a cross section of the most significant museum projects designed and built within the past 10 years. Through drawings, photographs, and original models, the show features 25 museums from around the world, including the Milwaukee Art Museum expansion by Santiago Calatrava. At the Milwaukee Art Museum. Contact 414/224-3200.

Idea and Phenomena: Steven Holl
Vienna
Through August 10, 2002
For almost three decades, New York architect Steven Holl's work has progressed and developed. As his list of important projects gets bigger and bigger, so does his name in the world of architecture. This exhibition shows his work from various angles, in different mediums, from watercolors to models, all presented in a manner that encourages the viewer to form an independent opinion of it merits. At the Architekturzentrum Wien. Call 43 1 522 31 17.

Transmodernity: Austrian Architects
New York City
Through August 12, 2002
Three Austrian architects under the age of 50 are featured in this exhibition. The works of henke und schreieck, Jabornegg & Pálffy, and Riegler Riewe are used to explore Modernism and how Austrian architects are dealing with it in the present. At the Austrian Cultural Forum, New York. Call 212/873-3284 for further information.

Three Nomadic Structures: Jean Prouvé and the Maxeville Years
New York City
Through August 15, 2002
This, the first exhibition of the French architect Jean Prouvé in the U.S., was initially scheduled to run only until May 10, but it has been extended. Prouvé has had something of a revival in recent years, and this exhibition offers a rare opportunity to see his work. At the Arthur Ross Gallery, Buell Hall, Columbia University. Call 212/751-6126.

Windshield: Richard Neutra's House for the John Brown Family
Washington, D.C.
Through August 18, 2002
An in-depth examination of Neutra's first project on the East Coast, completed in 1938. The show docu-



ments the creation of this home with examples of architect-client correspondence, original drawings, sketches, blueprints, home movies, photographs, and models. At the National Building Museum. Call 202/272-2448.

Artists Imagine Architecture
Boston
Through September 2, 2002
The Institute of Contemporary Art, Boston opens an exhibition exploring the architectural model as sculpture. International artists investigate structure, social interactions, and scale through the examination of Modernist architecture projects. At the Institute of Contemporary Art. Call 617/266-5152.

Living in Motion—Design and Architecture for Flexible Dwelling
Weil am Rhein and Berlin
Vitra Design Museum, Weil am Rhein: Through September 8, 2002; Vitra Design Museum, Berlin: September 21, 2002–January 26, 2003
This exhibition covers furniture and houses that reflect flexibility, multifunctionalism, and mobility, prime examples being Rietveld's Schroeder House, Shigeru Ban's Naked House, and Steven Holl's Fukuoka Apartments, among others. It covers a wide variety of cultures in its attempt to portray domestic flexibility. At the Vitra Design Museums, Weil am Rhein and Berlin. In the U.S., call 212/539-1900; in Europe, call 49 7621 702 3351.

Gerald Zugmann: Blue Universe
West Hollywood, California
Through September 8, 2002
This exhibition illustrates the decade-long collaboration between architectural photographer Gerald Zugmann and avant-garde Austrian architectural firm Coop Himmelb(l)au. At the Mak Center. Contact 323/651-1510.

Skin: Surface, Substance+Design
New York City
Through September 15, 2002
This exhibition skims the surface to explore the different ways skin is articulated in design. On display are a variety of objects and artifacts by such notable designers as Greg Lynn, Petra Blaisse, Ross Lovegrove, and Marcel Wanders, organized into five themes, each delving into questions of beauty, technology, and artificial life. At the Cooper-Hewitt, National Design Museum. Contact 212/849-8400.

Lectures, Symposia, & Conferences

Designing Oakland
Pittsburgh
July 9, 2002
This lecture accompanies the exhibition that will be on view from May 31 to September 22. Tracy Myers will be giving the lecture and slide presentation, discussing the history of the Oakland neighborhood's place as the city's cultural, educational, medical, and technology center. At the Library Center, George White Theater, 414 Wood St. Call 412/622-3288.

Notations Face Your World
Columbus, Ohio
Through July 16, 2002
Netherland artist Jeanne van Heeswick, of Rotterdam, with the aid of the Wexner Center for the Arts, has developed an interactive project called *Face Your World*, in which children can, using new technology, play with the look of their urban neighborhood. Using digital cameras and a new high-tech computer program, children get the chance to play the role of the urban artist and to interact with their art. The project will be located on a bus that is equipped with six computer stations and will require a "face your world" passport. Three days a week, the bus will bring these children to two Columbus Recreation and Parks centers and the Boys and Girls Clubs Westside Unit. To investigate further, call 614/292-0330 or visit www.wexarts.org.

What Matters Now: 52nd International Design Conference
Aspen, Colorado
August 21–24, 2002
Join leaders in architecture, the arts, and science in this year's annual design conference. The 2002 program committee members include Walter Hood, Michael Rotondi, Lorraine Wild, Paola Antonelli, Bran Ferren, Gregg Pasquarelli, and Billie Tsien. Visit www.idca.org or call 800/815-0059 for more information.

Universal versus Individual: The Architecture of the 1960s
Jyvaskyla, Finland
August 30–September 1, 2002
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the 1960s by illuminating universal currents as well as individual and regional trends. Keynote speakers include Beatriz Colomina, Claes Caldenby, and Dennis Doorman. Sponsored and organized by the Alvar Aalto Academy. For more information, visit www.alvaraalto.fi/conference/universal.

Conventions

XXI World Congress of Architecture
Berlin
July 22–26, 2002
The Union Internationale des Architectes invites architects and students from around the world to discuss responsibilities and strategies for environmental and sustainable design within an urban context. At the International Congress Centre, Berlin. Contact 49 30 9012 1314 for more information.

Rail-Volution 2002
Washington, D.C.
October 3–6, 2002
This year's conference focuses on the community's role in making transit and land-use decisions and brings a unique cross section of citizen activists, business leaders, elected officials, and planners to the table to discuss the issues. Rail-Volution features a variety of sessions, including hands-on workshops, case studies, and moderated panel discussions. Contact 800/788-7077.

NOMA International Congress and Exposition
Ft. Lauderdale, Florida
October 15–18, 2002
An opportunity provided by the National Organization of Minority Architects to showcase their work and interact with other architects and design professionals. At the Wyndham Bonaventure and Spa. Call 301/941-1065 or e-mail avery@noma.net.

Competitions

11th Annual Unbuilt Design Awards
Deadline: July 15, 2002
The Boston Society of Architects invites architects, educators, and students to submit projects that, to date, remain unbuilt. Both theoretical and client-sponsored projects are eligible. Visit www.architects.org for more information.

Gainesville Eco-History Trail Landscape Design Competition
Gainesville, Florida
Deadline: July 19, 2002
Sponsored by the National Endowment for the Arts New Public Works program and the city of Gainesville, this project is open to all architects, landscape architects, and planning firms. The site is a 2-mile-long stretch of trail going through the historic urban core of Gainesville. The winner of the competition receives the right to negotiate a contract for implementation, and prize money will be awarded to the top three entries. The top five designs will be featured in a month-long exhibition. See www.cce.ufl.edu for details.

Waterford North Quays International Competition
Waterford, Ireland
Final Deadline: July 31, 2002
Architects and urban designers are invited to submit a design for a dockland regeneration scheme for Waterford North Quays in Ireland. For more information, visit www.opw.ie/waterfordquays/index.html or e-mail b.mannion@opw.ie.

The Great Egyptian Museum Competition
Deadline: August 10, 2002
An open invitation to architects from around the world to participate in the creative design of this new museum. Located near the Giza pyramids, the museum will house some of Egypt's most ancient monuments and treasures. Visit www.gem.gov.eg.







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Dates & Events

Shinkenchiku Residential Design Competition 2002

Deadline: September 2, 2002

This competition, held annually by The Japan Architect, invites architects from around the world to explore the theme "Dwelling Where the Muses are Served/Spared Emptiness." The entire competition will be judged by one architect. The committee this year has selected Daniel Libeskind as judge. Sponsored by the Shinkenchiku-sha Company. Visit www.japan-architect.co.jp.

Pentagon Memorial Design Competition

Deadline: September 11, 2002

An open, two-stage competition to select a design for an outdoor memorial on the grounds of the Pentagon, near the site of impact. The goal is obviously to honor the victims of the attack on the Pentagon on September 11, 2001, and any individual or team may enter. For more information, call Mary Beth Thompson at 410/962-2809.

Events & Programs

Summer Design Institute 2002 New York City

July 15–19, 2002

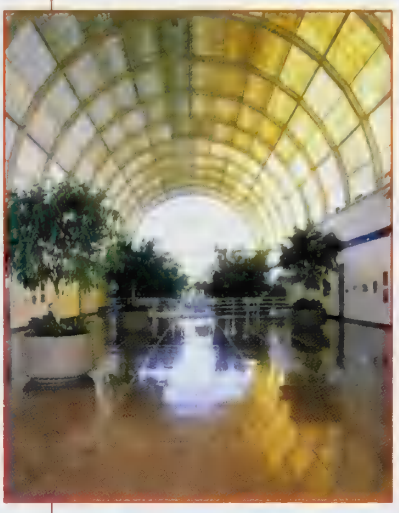
Educators and designers are invited to join a panel of international design educators to discuss strategies for engaging K-12 students in the design process. Hosted by Cooper-Hewitt, National Design Museum and the American Institute of Graphic Arts, this one-week program will feature workshops, studio visits, and keynote presentations by notable designers, including David Kelly, Eames Demetrios, John Maeda, and Eileen Adams. At Cooper-Hewitt, National Design Museum. Contact 212/849-8385.

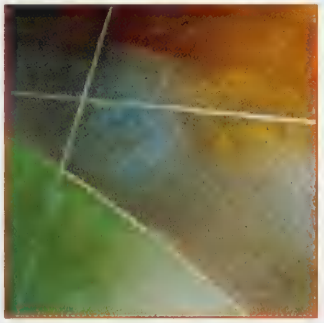
26th Annual Cooper Source Awards

Deadline: October 25, 2002

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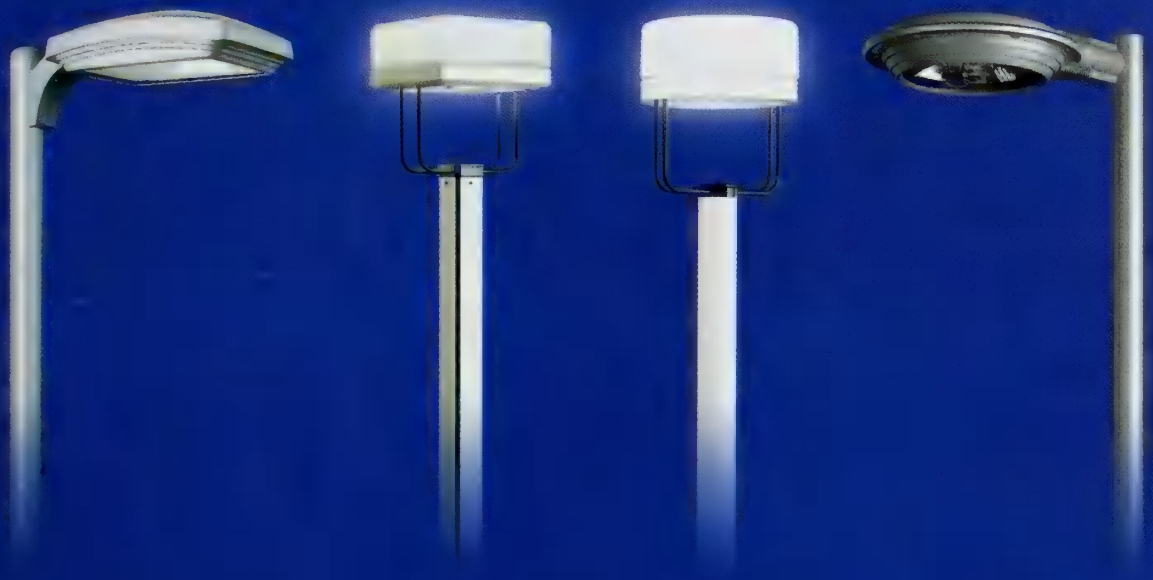
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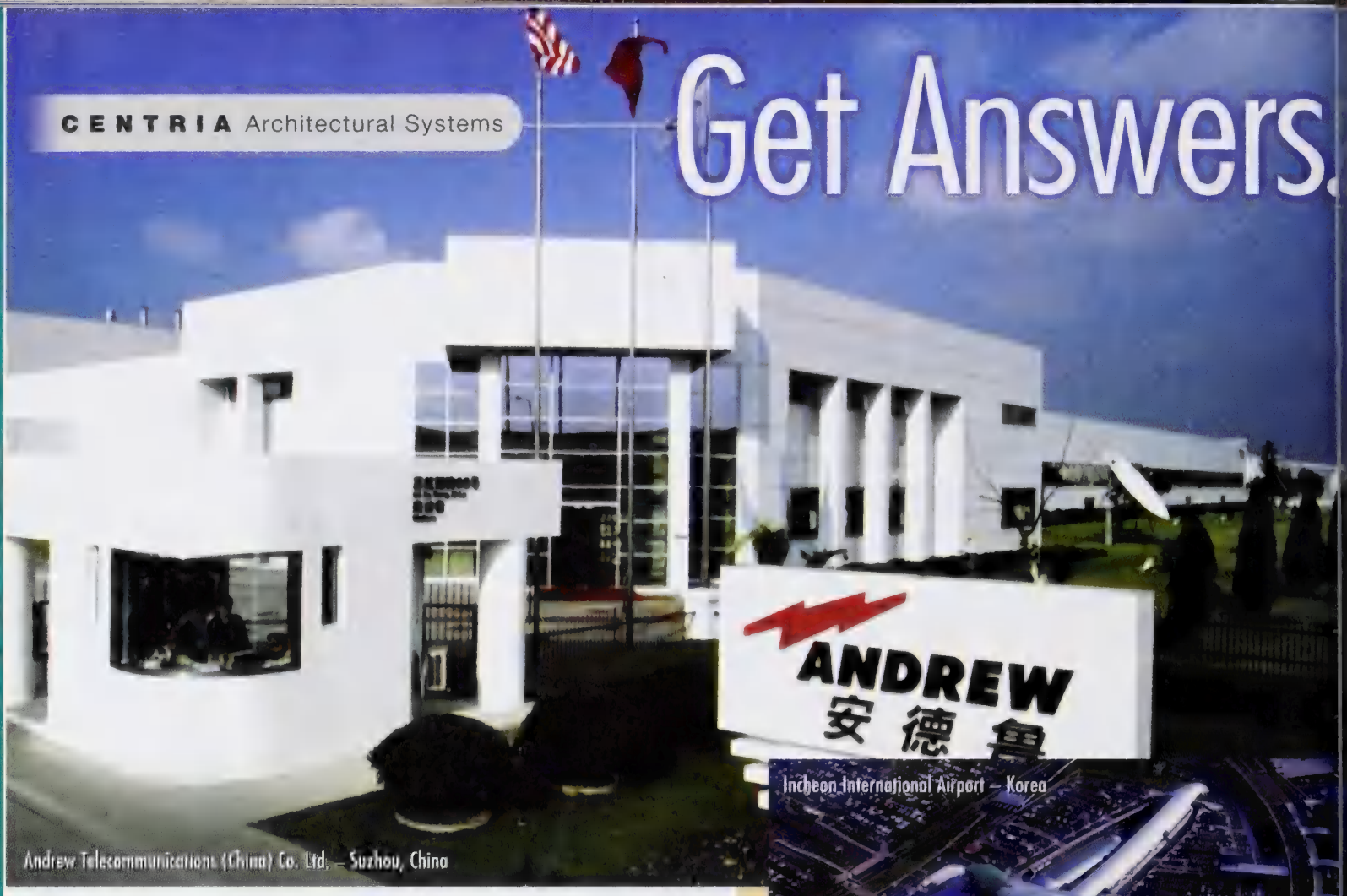
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FOR THE EMERGING ARCHITECT

Being at the start of your career means having alternatives, though for many architects starting out, the options seem limited. CAD for firm A, or model-building for firm B? This month, however, archrecord2 seeks out architects who are creating options for themselves. Whether taking an unconventional path to a conventional career or making up an entirely new job description, the six architects featured this month all Design, Work, Live, and Talk from an individual perspective.

DESIGN

Mike Latham: Mentorless Brooklyn

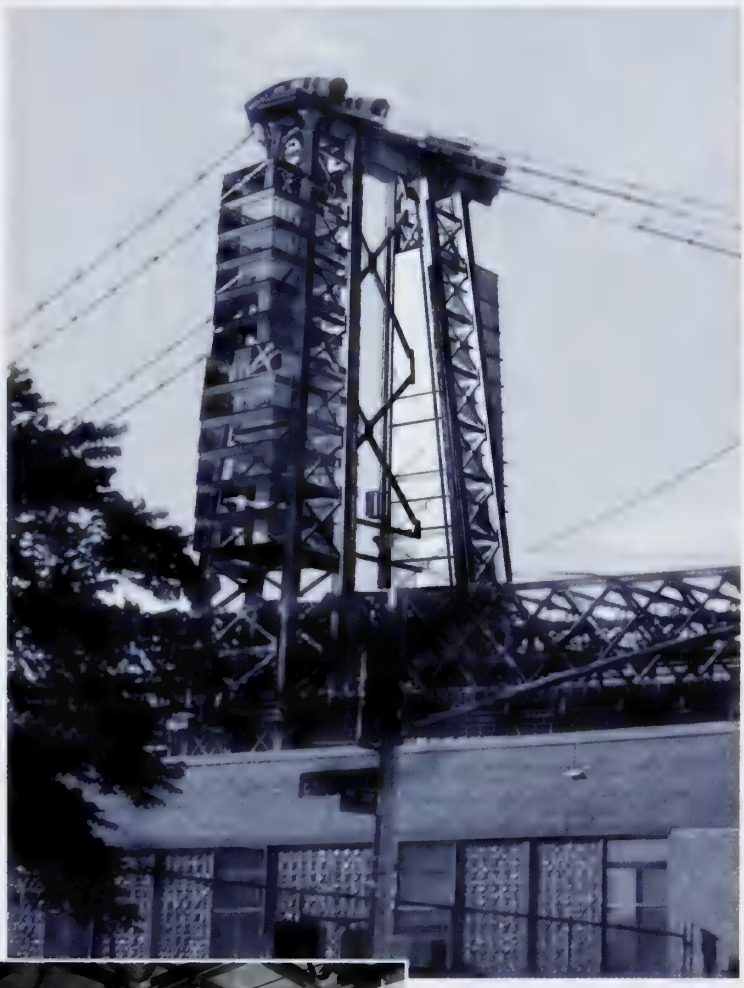


Mike Latham lives and works in a loft in the Williamsburg section of Brooklyn, in a building four or five fish-stinking, not-yet-quite-postindustrial blocks from the rapidly gentrifying main drag, Bedford Avenue. Latham, who calls his practice the(1999)project, designed his own loft, which is defined by huge rolling glass vitrines, one of which contains an entire guest room on wheels. Others store books, a TV, or snowboarding boots. With the exception of a vintage plastic-and-leather sofa, these vitrines *are* the space, which is otherwise the bare concrete essence of an artist's once-industrial loft. A product of his neighborhood, Latham lives and works at an intersection: between funky and yuppie; between industrial and artistic; between his trim gray slacks and his high-design sneakers.

Call it the naive idealism of youth—Latham, who only finished his M.Arch. at Columbia a couple of years ago, is only 26—but he can't see why he and his generation aren't poised to influence the world, or at least the world of architecture, in a palpable way. "I'm not a huge public activist," he says, "but some of my architect friends and I are seriously thinking about doing something to oppose this World Trade Center problem. We're the ones who are going to have to live with it. I don't understand why there isn't a call for an international design competition. It's what would happen in any other city in the world. This is one of the biggest urban design projects of the century, and I don't believe that we're so impotent that we can't do anything about it."

But what sets Latham apart from other young architects who hold on to their ideals is that he has set a path for himself to fulfill them. Instead of working for an established architect right out of school, Latham set up on his own, disregarding established procedure for what, to him, seemed like the more logical path.

"What I've picked up, I've picked up by doing," he says. "It's probably going to make it quite difficult for me to be licensed—though I may get licensed as quickly as the next person—because, although every time I work on a project I collaborate with an architect, mine is not a process that is officially approved of."

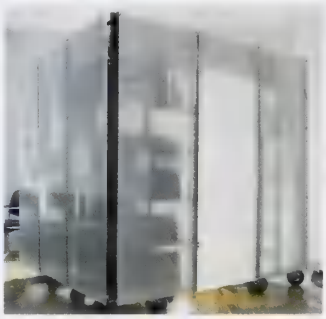




Williamsburg Bridge Lofts, Brooklyn, 2000
the(1999)project. Inspired by his own loft's view of the bridge, Latham projected a series of lofts (above and left) stacked on the support towers of the bridge.

(continued from previous page)

Latham has made his atypical career work by looking outside of pure design, to models of business that actually generate business. And he has made work for himself by having a physical product to market. He has found that having built work, even if it's furniture or one of the functional, technological sculptures he makes, has been an invaluable tool for marketing himself.



Belen Apartment, Brooklyn, 2001
the(1999)project. Latham designed this apartment, based on modular components, for a friend.

"That really is the mystery of starting out," he says. "Where do you get clients from? I think you get clients by doing. A lot of people have really good ideas on paper or in the computer, but you really need to get your work made and put it out there."

And then there's the story about him that ran in *The New York Times Magazine*'s *Home Design* supplement. Having your work on the cover of a glossy insert in a major newspaper certainly can't hurt from a client-gathering perspective.

Despite his early success, his slick loft, and his funky sneakers, Latham hasn't become jaded or detached from the real world. In fact, all of this "cool" is wearing on him a bit personally: "I'm sick of all the truck noise," he says. "I need a real apartment." *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 for more on Mike Latham's work, and to learn how to submit your own projects for publication.



1999 Loft, Brooklyn, 2001
the(1999)project. Latham's home and office, an industrial loft on the Brooklyn waterfront, was built for $15 per square foot.

WORK

Five designers forge hybrid careers

Redefining "architect"
So lately you've begun to wonder about your career in architecture. The economy has taken a turn for the worse, clients are hard to find, and those plumbing details that you spent a good part of last night finishing aren't exactly what you bargained for after three years of grad school. Time for a change?

In this month's Work section, *archrecord2* searches for life beyond the CAD station. We've found five architects who show that a degree in architecture has far more to offer than a working knowledge of construction drawings. They've ventured outside the boundaries of traditional practice, engaged other disciplines, and have resurfaced in the fields of writing, animation, film, and fashion. One architect has even found himself working in outer space.

Some have done so out of necessity. A slow economy often offers no other alternatives, and a job outside the profession is better than no job at all. Others were simply eager to explore new territory and delve into experiences that might, in the end, spark new ideas and perspectives. In a world where ideas and meanings constantly evolve, and information travels with the click of a button, it is almost impossible to not want to peek your head around the corner and see what else is out there.

We can learn a lot from these stories. Whether their paths were intentional or not, all five designers seem to demonstrate that venturing outside the profession can provide invaluable insight into—and understanding of—what is within it. And who knows what new ideas their experiences might inspire? Through their discoveries we may also find solutions, new perspectives, new challenges, and—if we look hard enough—perhaps even a new direction for the future.

Profiles of these five architects—journal editor Mimi Zeiger; game designer Ed Keller; clothing entrepreneur Joe Day; floral designer Mako Otaki; and NASA architect Garrett Finney—can all be found on *archrecord2*'s Web site. Maybe you'll find some ideas for your own career.

Christina V. Rogers

To read the rest of this article, visit architecturalrecord.com/archrecord2.

On the Web, *archrecord2* presents an ongoing dialogue among young architects. The interactive forum addresses topics as diverse as the ARE and what inspired readers to become architects in the first place. Click on TALK at **architectural record.com/archrecord2**.



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Will a new wave of tropical Modernism restore San Juan's luster?

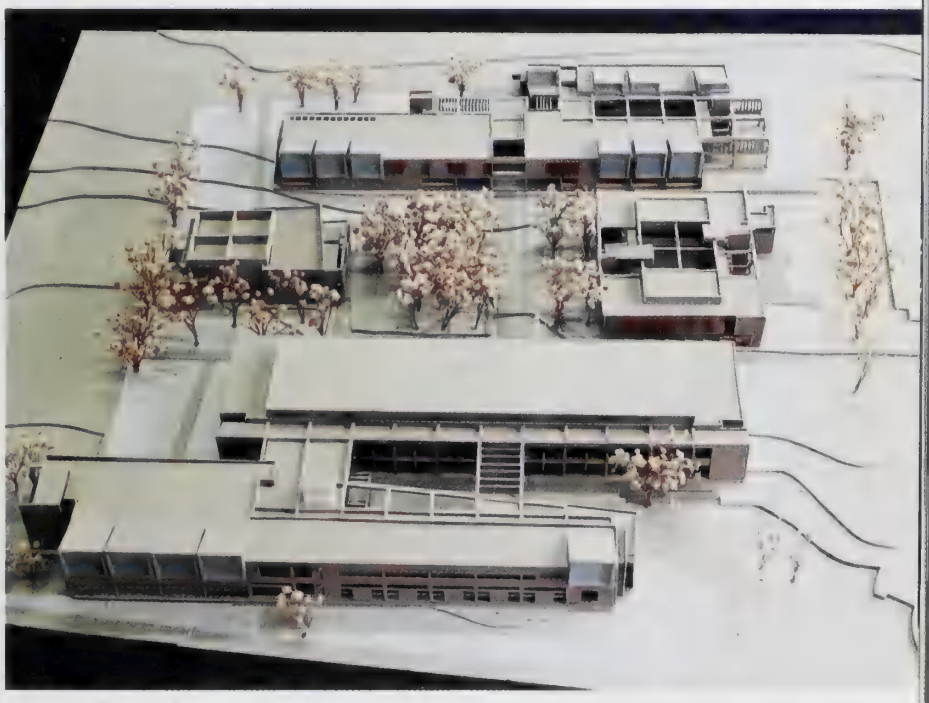
Correspondent's File

By James S. Russell, AIA

With its sparkling beaches, bay, and lagoon, all protected by the brooding mass of the El Morro fortress, San Juan, Puerto Rico, has as blessed a setting and as deep a history as any Caribbean city. But Havana has captured the world's imagination, and Miami's South Beach has become a visitor magnet. San Juan has many of the same ingredients, but somehow seems a little pale and unfocused.

A development site of enormous promise could define a new image for the city. The Hotel Development Corporation and the Government Development Bank of Puerto Rico are negotiating terms of a competition-winning development proposal for what is called "The Condado Trio"—named for the three derelict hulks that occupied this two-block stretch of prime beachfront. One was once the Gran Hotel Condado Vanderbilt, an elegant Spanish Renaissance–revival villa built by New York Central Railroad magnate Cornelius Vanderbilt as the luxury destination in San Juan's steamship era. Completed in 1919 by Vanderbilt's Grand Central Station architects, Warren & Wetmore, its red-tile roofs and elegantly grilled arcades owed more to Santa Barbara than San Juan, but nonetheless opened an era of genteel tourism. Local architect Marvel and Marchand will restore the structure and add two modern wings, augmenting the 93 existing rooms with 160 new ones.

At the eastern end of the site is what could be the real gem of the redevelopment: La Concha, a masterpiece of tropical Modernism. Its original architect, Toro Ferrer Arquitectos, although still in practice is little known on the mainland, but this early work could take its place near the top of the postwar International Modernist heap. Even in its moth-eaten current state, the 1958 structure sails along the beach with enormous International Style panache. With its shutter-clad breezeways, its delicate precast-concrete grillwork, vaulted retail arcade, and curvy pools and waterfalls, La Concha is as suave and sensuous as anything built in the postwar era. "It will be renovated to pretty close to the original design," says principal Thomas Marvel. That will include restoring the fluted, conch-shell-shaped roof of the old supper club that gives the hotel its name. The shell will once again hover over a reflecting pool.



A model for the University of Puerto Rico's new architecture school, by Bermudez and Delgado.

The third building in the "Trio," an unloved convention center (amazingly, also by Toro Ferrer), has been demolished, opening a welcome window to the sea in this high-rise enclave. A new plaza is under design by Andrés Mignucci.

A few years ago, such an encumbered site would not have attracted much interest. Indeed, an earlier $250 million attempt to redevelop the properties depended on demolishing La Concha. After a public outcry, preliminary demolition was stopped and a court eventually revoked approval.

In the meantime, Miami's South Beach has solidified itself as a major urban-resort destination built upon its restored Art Moderne splendor; the boutique-hotel trend has taken off; and Latin American modern architecture—from Brazil to Havana—is fast being rediscovered. Downtown San Juan is now the only Miami alternative for visitors who want the beach, the pool, and the weather within easy reach of big-city shopping, restaurants, nightlife, and cultural events. As a result, the Condado district has attracted renewed investment.

Successful redevelopment of inner San Juan could reestablish a uniquely Puerto Rican architectural and urbanistic identity. This relatively small island now exerts outsize influence in popular music and cuisine. The Museo de Arte de Puerto Rico (with a recently completed new wing by architect Otto Reyes, added to a restored landmark) makes a persuasive case for local fine artists. Is it architects' turn? It won't be easy: San Juan's urban development tends to follow the generic real estate formulas of the mainland.

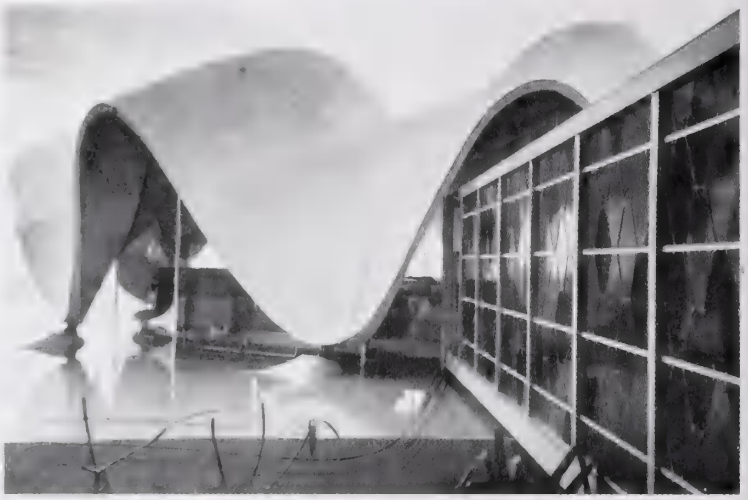
But the La Concha controversy came along at a time of rekindled interest in the extraordinary architectural legacy of the 1950s and

1960s. The firm of Sierra, Cardona, Ferrer has added a respectful wing to a law school at the University of Puerto Rico originally designed by Henry Klumb, a postwar master of suavely grilled sunscreens and delicate garden courtyards. Davis Fúster, in renovating the Plaza del Mercado, a covered farm market, scraped away years of accretions to expose the handsomely engineered concrete vaulting designed by architect Pedro Miranda in 1968. (Other examples of this golden era abound in the book *Ever New San Juan: Architecture and Modernization in the 20th Century*, edited by Enrique Vivoni Farage, published by Archivo de Arquetectura y Construcción, University of Puerto Rico). The best work deploys the brise-soleils, concrete grillwork, and attention to natural ventilation that were emblems of climate-sensitive international Modernism.

Urbanistically, San Juan has not found a way to exploit its extraordinary setting. With a poor bus system and a local attachment to the automobile that rivals any place on the mainland, traffic is highly developed highway system carries people from overburdened city streets to clogged new suburban enclaves. (Most observers put little faith in a new high-speed train line, currently under construction, to allay the congestion.)

URBANISTICALLY, SAN JUAN HAS NOT FOUND A WAY TO EXPLOIT ITS EXTRAORDINARY SETTING.

San Juan residents and mainland snowbirds alike, however, are rediscovering the handsome buildings and beautiful settings of such inner-city districts as Miramar and Santurce. But for every renovated Moderne apartment building and every restored traditional, porch-wrapped house, many more are displaced by generically styled high-rise condos fortified by high gates and fences. A number of landmark-quality hotels have been restored, notably the exuberantly Art Deco Normandie, but shortsighted operators often deprive the structures of much that's distinctive. The hand-ghastly. The perilously narrow sidewalks are generally empty, in spite of the temperate climate. Safety concerns, of course, don't make the streets appealing, either, and even the casual visitor will notice the impressive array of grills, walls, and gates that increasingly fortify both homes and businesses. A



The fluted-concrete roof of La Concha's supper club will be restored.

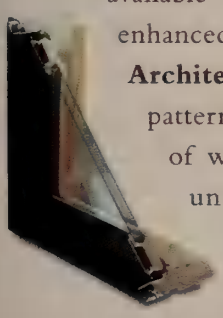


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some Gropiuslike massing of the 1948 Caribe Hilton remains, for example, but the bravura sweep of the interior of what can only be regarded as one of Toro Ferrer's masterpieces has largely been lost in generic, hotel-chain renovations.

A younger generation of designers is building on this legacy, taking tropical Modernism in new directions, primarily in houses, like one by Toro Ferrer's younger generation (photo this page). Though the city has a wide architectural talent pool, it's not easy being an architect in San Juan. Like other Caribbean islands, Puerto Rico has struggled to make a workable economy in a world where someplace else is always cheaper or better connected to global markets. The island has a hard time attracting and retaining highly skilled construction specialists, which means that quality often suffers. Architecture depends more on the public sector here (as in Europe), which means commissions wax and wane according to whether the government in power values the contributions architects can make, and whether money is available for public works. Since being awarded the commission to design the new architecture school at the University of Puerto Rico in 1996, for example, architect Bermudez and Delgado watched the scope go down, then up partway. "The university went through two presidents and three chancellors," said principal Eduardo Bermudez, "and the building was moved to a whole new site." After several redesigns, the project is now in construction.

PUERTO RICO HAS STRUGGLED TO MAKE A WORKABLE ECONOMY IN A WORLD WITH BETTER-CONNECTED GLOBAL MARKETS.

The current governor, Sila Maria Calderón, recently commissioned modest urban revitalization projects in several cities. Looming in the future is the fate of the island of Vieques. Although the Navy has long used parts of it for bombing practice, much of it remains pristinely natural. Whether it stays that way, or is sensitively developed, will test Puerto Rico's commitment to the future as well as its design talent. ■



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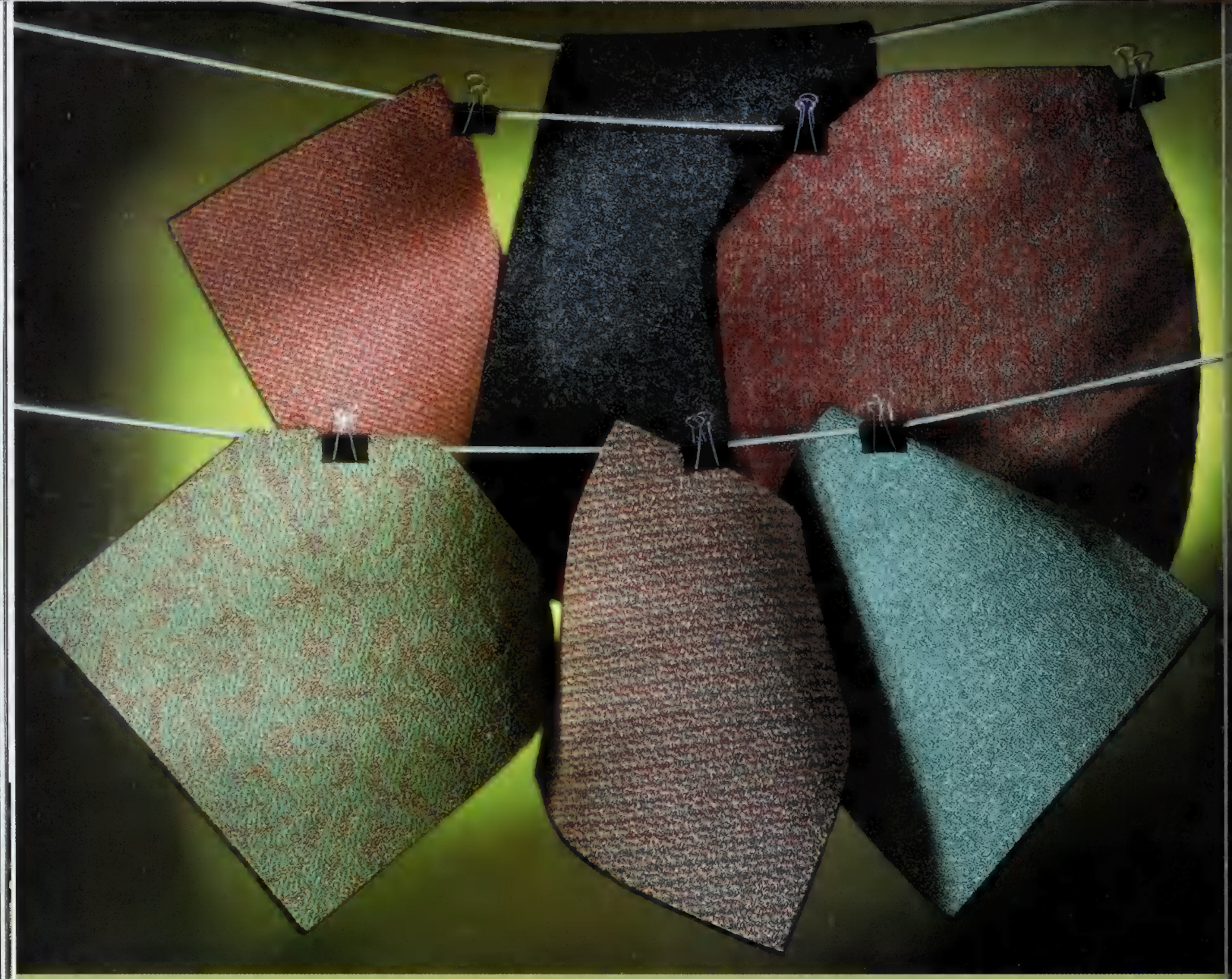
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Urbanism is politics: Lessons from a place where the extremes now rule

Critique

By Michael Sorkin

During their recent "incursion" into the West Bank, Israeli forces were sent on a search-and-destroy mission to the Jenin refugee camp. Confronted with a labyrinth of streets far too narrow to permit tanks and armored vehicles, the Israelis elected a house-to-house approach. When a number of Israeli troops were ambushed and killed, bulldozers were introduced, to topple houses and clear the site for safer access.

The destruction of the refugee settlement was, among other things, an act of urbanism, Haussmannization raised to a flash point. Although the consequences of the great boulevardization of Paris in the 19th century were not immediately lethal to those whose houses were destroyed to make way for Napoleon III's grand axialities, the impetus to demolish was motivated in part by military needs. The broad boulevards were meant to expedite troop movements around town and provide clear fields of fire in case of insurrection.

Nowhere today is the political use of urbanism more glaring than in Jerusalem and the West Bank. This is true of the Palestinian suicide attacks on the benign settings of urban conviviality—the murder of Israelis as they sit in cafés or shop in markets—and of the more bureaucratic styles of apartheid and occupation engineered by the Israelis. Both sides clearly understand the relationship of the patterns of the city and urban life to the politics of struggle for rights and privilege. And both clearly understand how to make cities into places of fear.

In this supercharged atmosphere, no urbanism can be spoken of outside its political dimension. Here in the U.S., our most pressing urban issue is sprawl, which we largely understand as an environmental question. In Jerusalem, sprawl has a different flavor. Israeli policy to "Judaize" the city has resulted in the construction of a ring of settlements—housing close to 200,000 people—that a more growth-sensitive approach would never countenance. By building beyond the boundaries of the existing conurbation, however, a ring of population has been imposed—like a wall—to both control the city and to thwart any potential division. Sitting in their arrogance on the tops of hills, the settlements represent an almost medieval style of planning, prompted by aggression and machismo.

The suburban sprawl of the West Bank settlements has been produced by the same means that generated our own suburbs. Like the cheap loans for returning veterans, the construction of the Interstates (our erstwhile "National Defense Highway," justified, in part, by the need to redeploy people rapidly in the event of nuclear attack), the accelerated depreciation of suburban commercial development, and the disproportionate subsidies for infrastructure, the Israeli settlements are the direct outgrowth of government policies meant to create a particular environment for particular people. In the settlements, the tools of planning produce their usual product: benign-looking clusters of Mediterranean-style, whitewashed houses with red-tile roofs, backyards, and pools. Here, too, is the idyllic atmosphere of suburbia, a rankling obliviousness that surely drives Palestinian villagers below to distraction.



The view from a building in the Jenin refugee camp is one of turmoil.

But the picturesque view can only be sustained until the frame is slightly enlarged. This picture shows the barbed wire, soldiers on patrol, and a striking contrast with more indigenous styles of building and of life. In this picture, nearby Palestinian villages and towns come to constitute—in their morphological and economic difference—a kind of dispersed "inner city." The familiar contrast between the city and its suburbs is played out in a tiny territory as the Israelis pursue simultaneous policies of urban renewal and ghettoization—urban renewal in the sense of the demolition and devaluation of the original inhabitants, and ghettoizing not only for the Palestinians, but also for the Israelis, electively ensconced in their pleasant but beleaguered settlements.

The political sprawl of the settlements—and the murderous rage of the Palestinians—reflect the impossible physics of a situation in which two hostile populations attempt to occupy the same space at the same time. Even nominally shared space—streets and highways—becomes a battleground. The horrendous bus bombings are both murder clear and simple and an assault on the most fundamental freedom of the city, just as the construction by the Israelis of their private road networks on the West Bank are designed both to

Contributing editor Michael Sorkin practices architecture and is the editor of the book After the World Trade Center: Rethinking New York City.

allow settlers to commute to Israel proper without passing through Palestinian towns and to divide the West Bank into a series of cantonments. Thus the traffic planner's language of convenience and speed takes on an oppressive dimension that cannot be escaped.



A house is destroyed in the Gaza Strip.

On a visit to the school of architecture at Bir Zeit University outside Ramallah a few years ago, I was wandering the corridor of the civil engineering department when I came across a plan for a "bypass road" around a village. My immediate thought was that this was a part of the Israeli road network on the West Bank. Closer inspection revealed, however, that it was simply a traffic-management scheme designed to avoid slow-going in town for Palestinian motorists. The alternative road, in itself, is a somewhat questionable enterprise: Witness the number of American towns that, bypassed by through traffic, have seen their economies wither. While the bypass may be a foolish piece of modernization, it lacks the sinister dimension of the Israeli network, which has strong parallels with the historic effect of American inner-city highways in isolating and destroying poor communities of color.

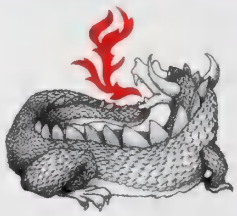
The extreme politics of planning in Israel and Palestine result in a situation that is separate and unequal at many levels. Systems of water supply, sanitation, energy, transportation, green space, and other elements of infrastructure are—despite many decades of pieties on the part of the municipal administration in Jerusalem about equalizing services—totally skewed to Israeli benefit. While Israeli Jerusalem has a reasonably integrated system of transportation, including highways, bus lines, airports, a train to the coast, and a good collective taxi system, the Palestinians are highly constrained in their ability to move, a product both of draconian and humiliating security arrangements that can extend a 20-minute commute to hours and of a fundamental lack of transport services.

To get around, Palestinians must rely either on the Israeli systems—when available to them—or on their own network of cars, buses, and a collective taxi system of great potential efficiency, thwarted only by oppressive security delays. What is frustrating about all of this from the point of view of planning is that an efficient system for both Israeli and Palestinian Jerusalem is easy to imagine in purely technical terms. Jerusalem is a node on a linear urban system that runs from Nablus in the north through Ramallah, Jerusalem, and Bethlehem, to Hebron in the south—a classic linear city, considered in purely physical terms.

For transportation planners, the logic of a north-south system would seem clear-cut. Given the density of settlement and the relatively small distances, such a system might be both highly efficient and profitable and an instrument of accommodation, convenience, and peace. Unfortunately, politics stands in the way. Still, there are precedents for cooperation. There is one part of the urban infrastructure where all of Jerusalem works together: The municipal sewerage system is joined. Perhaps this is an earthy harbinger of greater possibilities should justice and reason ever prevail. ■

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FreemanWhite Academy takes continuing education back to school

Practice Matters

By Charles Linn, FAIA

Can a continuing education program enhance a firm's performance and contribute to its bottom line? Senior managers at FreemanWhite, an architecture and engineering firm in Charlotte, North Carolina, believe theirs does. The firm currently invests 4 percent of its gross annual revenue in its expansive education program, the FreemanWhite Academy. This is a considerable sum; by comparison, it is more than many firms its size spend on marketing. "We consider this a minimal investment when compared with the returns we receive from having heightened employee knowledge, improved skills, and enhanced employee satisfaction," says principal Alan Baldwin, AIA.

Don't try to grow without it

The continuing education program was proposed during the mid-1990s as a part of a larger plan to expand and reposition the firm's business. The principals decided to create studios for the design of buildings for government and for senior care in addition to their already flourishing health-care design practice. They also decided to create new consulting groups to provide strategic planning and operational analysis for clients who operate these building types.

The firm's leadership also believed that if they were to expand into these new areas, there would be a need for firmwide education. They felt that unless knowledge about these new building types, as well as advanced project-management techniques, could be shared with employees, what the firm might gain through expansion could be short-lived. Firms that grow quickly but are unable to maintain their culture and quality while controlling costs often do not survive their success.

The results

FreemanWhite's new business strategy was the right move at the right time. Growth in its chosen sectors, coupled with the active economy of the late 1990s, set the stage for rapid expansion at the firm. Since 1996, the number of its employees has increased from 66 to 232. Members of the firm currently hold 331 licenses in 38 states.

After looking at the stated goals for the academy, one might conclude that some of the firm's leaders aspire to be educators themselves. Among the academy's objectives are providing employees with career-long learning; teaching skills necessary to meet job-performance goals; allowing interdisciplinary learning within the firm's design, strategic planning, and operational analysis groups; and strengthening the profession by offering courses to practitioners who work at other firms.

The academy's growth has been proportional to that of the business—a handful of classes given the first year has been expanded to almost 140 courses, broken into two groups: core classes, which are not unlike required courses in a college curriculum, and enrichment classes, which function like electives.

All the firm's employees use the program—even its receptionists are required to complete 10 of the firm's continuing education classes. A customized core curriculum has been created for each of FreemanWhite's 43 different staff positions. For example, an employee cannot become a project manager without completing 21 core courses. These include negotiation of contracts and fees, client development, risk management, quality management, leadership and team building, and public speaking. FreemanWhite is an AIA continuing education provider, and its courses are designed to meet AIA learning objectives and state board requirements. To underscore the importance of the curriculum, advancement and performance reviews are tied to successful completion of different courses. Employees can get stipends if they choose to take courses not offered in-house.



Using the firm's intranet, employees can view their transcripts, see class schedules, and enroll in classes. They can even order lunch online for lunch-hour courses. Classes are taught in a 32-seat classroom equipped with computers, video, and multimedia-presentation equipment. When an employee enrolls in a course, an entry is automatically inserted into his or her online calendar. When course work is complete, the firm's human resources department forwards certificates of completion to the employee's licensing board and professional associations.

Payback time

Running the program isn't cheap, but, Baldwin notes, "It's really true: Well-educated employees really do add to the bottom line. They are happier and work harder because they see that the firm is investing in their growth. Our turnover has stayed low even as the firm has grown." The firm's surveys show that client satisfaction has improved as its profitability has increased.

Notice of the FreemanWhite Academy's successes has not been limited to the firm's workers and clients. At the AIA Convention in Charlotte this past May, the firm's program won the institute's 2001 Award for Excellence in Continuing Education. ■



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Urbanism gone awry: The ever-morphing cityscapes of Asia, America, and Europe

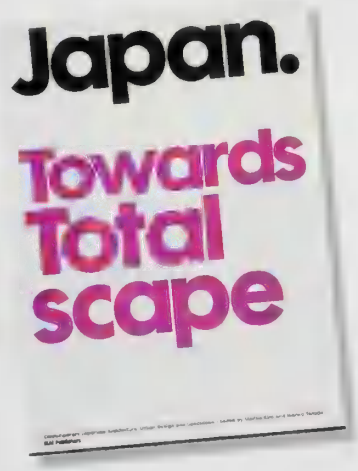
Books

Japan. Towards Totalscape, *by Mariko Terada and Moriko Kira. New York: Distributed Art Publishers, 2001, 332 pages, $43.*

Think of Japanese landscapes, and painstakingly tended gardens and gently tamed panoramas come to mind. Yet in interviews and essays, *Towards Totalscape* describes a people who dislike greenery (hence their shortage of urban parks), and who venture into the countryside not to enjoy nature but "to enjoy the same amenities and lifestyle they left behind." The book characterizes the Japanese as devaluing attachments to place, allergic as they have been since World War II to anything hinting at ultranationalism. "Our identities," writes landscape architect Naoki Takeda, "have become divorced from our landscape. Such a thing would be unthinkable in Europe." We read, moreover, that the Japanese have disconnected design identity from tradition and, because they associate big plans with their imperialist past, have tended to shun planners and their ideas for organizing landscapes and urban spaces.

But change is afoot, according to *Towards Totalscape*, due in large part to a more than decade-long economic and political crisis, the result of outdated economic, cultural, and social structures that emerged after World War II. The crisis has made people suspicious of the prevailing "Tokyo is the best" mentality. They are moving back to smaller cities and towns, and such local regional centers as Fukuoka are growing in importance. So is local enthusiasm for public projects and urban designs that take their cues from local characteristics and embody a city's ambitions. Such designs are featured among 90 by 56 architects and urban planners shown in this volume; it accompanied a winter 2000 exhibition by the same name at the Netherlands Architecture Institute in Rotterdam.

Towards Totalscape calls for a more contemporary, rational way of organizing the Japanese landscape to reflect indigenous cultures and environments while accommodating a shrinking population with greater mobility and new information technologies. "We have to rethink the city



and architecture as something that integrates the various 'scapes,' " writes architect Moriko Kira. "Totalscape," she says, is "accepting things as they are and yet providing some kind of direction for development." The book's greatest weakness is graphic. Built designs are shown in badly reproduced duotones. And the attempt to give an overall impression of cities, sprawling suburbs, and unspoiled nature by ganging postage stamp–size photos results in a homogenous blur.
Andrea Oppenheimer Dean

The Provisional City, *by Dana Cuff. Cambridge: MIT Press, 2001, 400 pages, $40.*



A remorseless civic hand sweeping away old homes on a hillside; a megadeveloper's dream transforming open fields; the power of a vision to disrupt, change, and hurt; the constant force of money: These are the stories that Dana Cuff tells in *The Provisional City*. Cuff tells tales of bigness, of projects that transform the urban landscape definitively. She locates her saga in Los Angeles, her hometown, which offers plenty of material. Looking back over the past century, Cuff recounts the creation or attempted creation of five predominately residential projects: the Aliso Village, a Modernist public housing project that replaced an old Hispanic downtown neighborhood called The Flats in the 1930s; Rodger Young Village, a Quonset-hut town built as temporary housing for veterans after World War II; Westchester, a West Coast Levittown; Elysian Park Heights, a public-housing project attempted in the 1950s on a semi-populated ravine; and Playa Vista, a present-day proposed New Urbanist city on the old Hughes airfield. The book is well illustrated with period photos, many of them from the ubiquitous chronicler of Los Angeles' architectural journey, photographer Dick Whittington.

Cuff states that her book is a study of what we've lost, how it was lost, and what has come to take its place in cities. It examines how large-scale urban residential additions come about and what they supplant. The stories Cuff tells are mostly sad. She describes projects that are largely gone now, eaten away by the same financial forces that created them, or by their designer's flawed visions. She shows the rise and fall of the Modernists' rational ideals. She charts the rejection of widespread public housing in favor of subsidies to private developers and buyers. She shows the changing face of civic power.

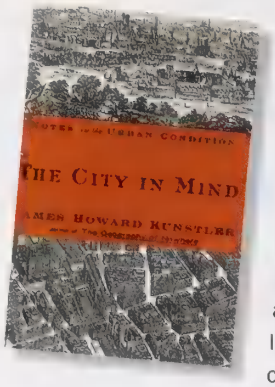
Cuff blends her case histories with chapters showing where the power for such sweeping change resides. Best is her discussion of the concept and implementation of property rights, which goes back to John Locke's rationales for wresting power from royalty, and in the modern era is usually used by those with more power to take from those with less. The government and courts

support eminent domain to build baseball stadiums, while giving rich homeowners freedom from environmental regulations.

Cuff's book helps the reader understand the forces that make and remake cities. For the most part, her historical research is excellent, although the section on Playa Vista is thinner and more perfunctory than others. The book has other limitations. First, her attempt to distinguish between disruptive and more orderly development is not quite right. Cities originate from invasions and conquests by railway lines, highways, industry, and the military. What appears orderly now often had disorderly beginnings. Secondly, her comments are insightful, but she has few suggestions for a better development framework. She says weakly near the end, "I believe that some large urban projects should be built," but she gives no criteria for their selection. A more general respect for both community and individual rights would be a good place to start. *Alex Marshall*

The City in Mind: Notes on the Urban Condition, *by James Howard Kunstler. New York: The Free Press, 2002, 272 pages, $25.*

In *The Geography of Nowhere*, Kunstler depicted an America declining into sprawl. Here he takes on eight cities (Paris, Atlanta, Mexico City, Berlin, Las Vegas, Rome, Boston, and London) and concludes that, for the most part, they and urban life in the West in general have declined appallingly. Starting on a positive note, he describes Baron Haussmann's late-19th-century redo of Paris as proof that "city-making is an art rather than a product of statistical analysis or social-service casework." But then he marches through Atlanta, finding a "giant hairball of a 13-county demolition derby" whose "only plausible future" is to become significantly depopulated. He describes Mexico City as a "hypertrophied metastasized organism destined to devour itself." And Las Vegas is "the place where America's spirit crawled off to die."



His ideal is the Classical idea, as he explains in his chapter on Rome. He laments that the Modern movement has tossed out the Classical idea, "along with 2,500 years of cultural memory." He finds Berlin in relatively good shape, in large part because " 'creativity' and 'genius' [have taken] second place to the ordering principles of traditional urbanism." He singles out Boston as an American model for its in-town living and because it has revived many of its residential neighborhoods. (But what about that back-to-urban-neighborhoods trend we've been reading about?) Our would-be Tocqueville ends in London, where he skewers the City Beautiful movement and Olmsted, in particular, for trying to bring country living to city life. There are worthy observations in *The City in Mind*, but they tend to be eclipsed by Kunstler's unremitting, too-clever rant. *AOD*

Pioneers of American Landscape Design, *by Charles A. Birnbaum and Robin Carson. New York: McGraw-Hill, 2000, 486 pages, $60.*

Who designed America? *Pioneers of American Landscape Design*, without overtly intending to, makes a compelling case that landscape architects were far more important than architects in shaping America's

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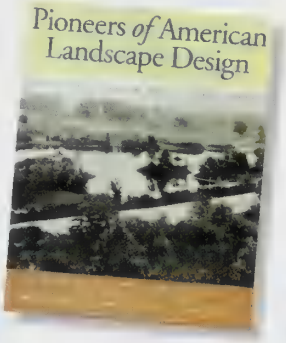
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designed environment. To many architects, a landscape architect is a horticulturalist with attitude. But these pioneers laid out towns, made the National Park System accessible, and designed the limited-access parkways that preceded the grim concrete trenches we call the Interstate Highway System.

Pioneers of American Landscape Design, though, isn't a tract. It's a useful and eye-opening encyclopedia describing the vision and work of some 160 people who shaped America by designing gardens, parks, and roads, as well as towns and vast multistate territories. Amazingly, it is the first such compendium. Charles Birnbaum is the coordinator of the National Park Service's Historic Landscape Initiative; coeditor Robin Karson is executive director of the Library of American History. They joined forces with Catha Grace Rambusch, the director of the Catalog of Landscape Records in the United States, at Wave Hill, to present material on designers whose efforts are widely scattered and little known.

Among the book's pioneers are such key figures as Andrew Jackson Downing and Frederick Law Olmsted. But it also includes profiles of conservationists, farmers, foresters, surveyors, educators, planners, engineers—even architects. The book looks at people who changed the way we see the landscape. Benton MacKaye, for example, conceived the Appalachian trail and laid the conceptual groundwork for the vast hydroelectrified landscape created by the Tennessee Valley Authority. The rational yet picturesque plans devised by John Nolen for towns all over the country still inspire New Urbanists. Christopher Tunnard's Modernist bent influenced important post-pioneer generations of landscape designers, including Dan Kiley, Garret Eckbo, and the late Ian McHarg.

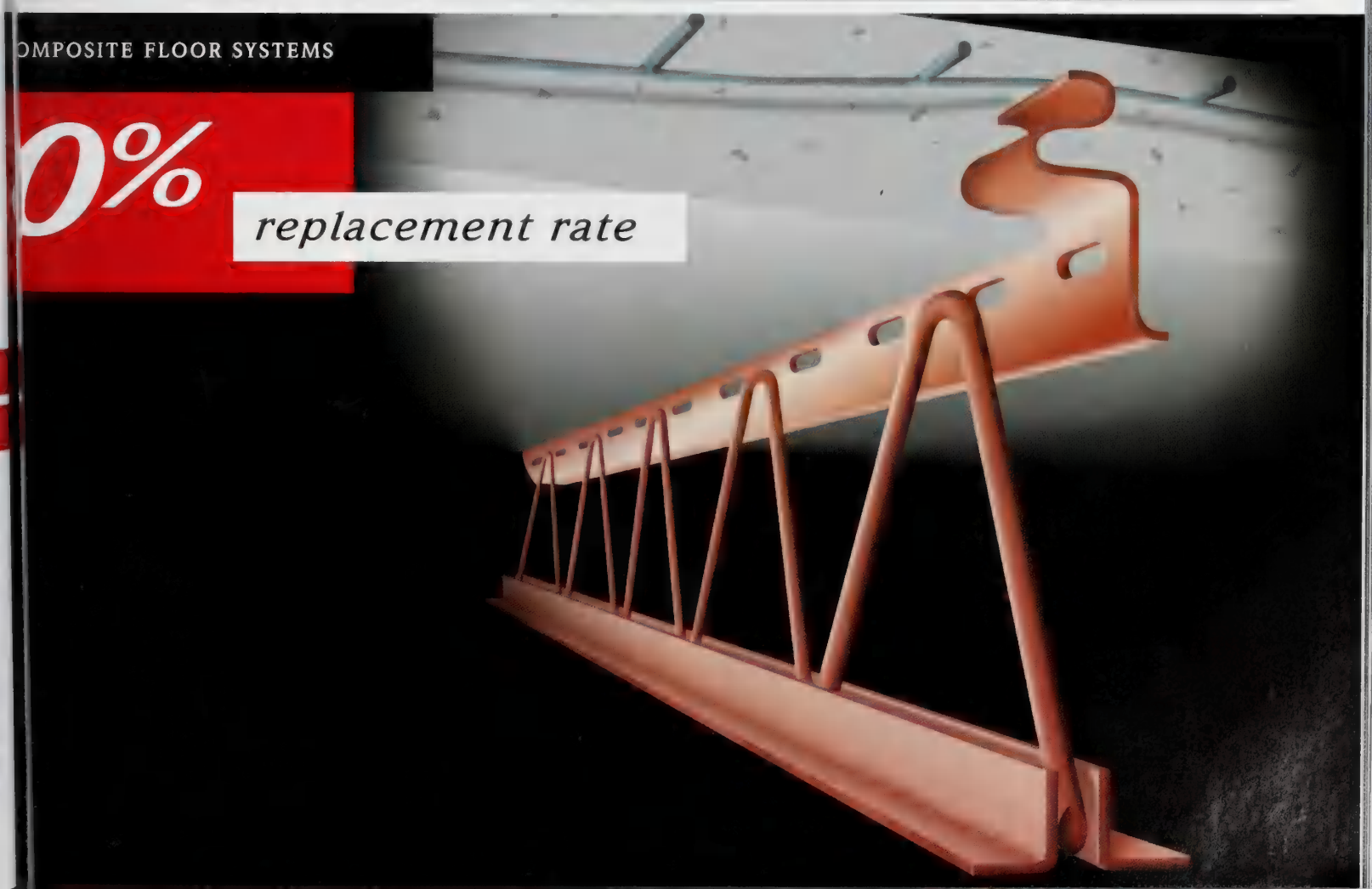


We learn who designed the countless streetcar suburbs and genteel subdivisions that remain many cities' most sought-after addresses. We read how Benjamin Banneker, an African-American surveyor who worked with Pierre L'Enfant, rescued the plan of Washington, D.C. Thanks to a photographic memory, Banneker recreated the plan after George Washington fired L'Enfant, who left town, drawings in hand.

Nor is traditional landscape design neglected. We discover it was Charles Burnap's idea to plant cherry trees along Washington's Tidal Basin. Well-illustrated entries identify designers who famously collaborated with architects on gardens and country houses, parks and museums. Women appear earlier and more frequently than they would in a corresponding volume on architecture. There are female horticulturalists and great garden designers, such as Dumbarton Oaks' Beatrix Farrand, but there is also the architect Hazel Waterman, who preserved and popularized California's Spanish architectural heritage.

Don't be put off by the book's stodgy design; the weird presentation of some images first in black and white, then in bleary color; or by Birnbaum's dry and list-filled introduction. Most of the entries, from dozens of authorities, are readable; many are fascinating. (At the back is a useful list of sites open to the public.) Taken together, the biographies describe an endeavor to which Americans feel closer than to architecture. People occupy buildings and live in cities, but their hearts are often out on the prairie or in the mountains. By poignantly expressing the nation's connection to the land and to its vast and often frightening wilderness, these "cultural landscapes," as Birnbaum calls them, tap into something deep and emotional to which the architect is only occasionally allowed access.

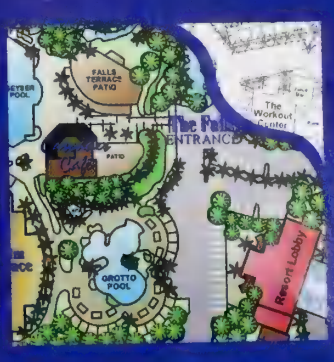
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Projects Undertaken

By Sarah Amelar

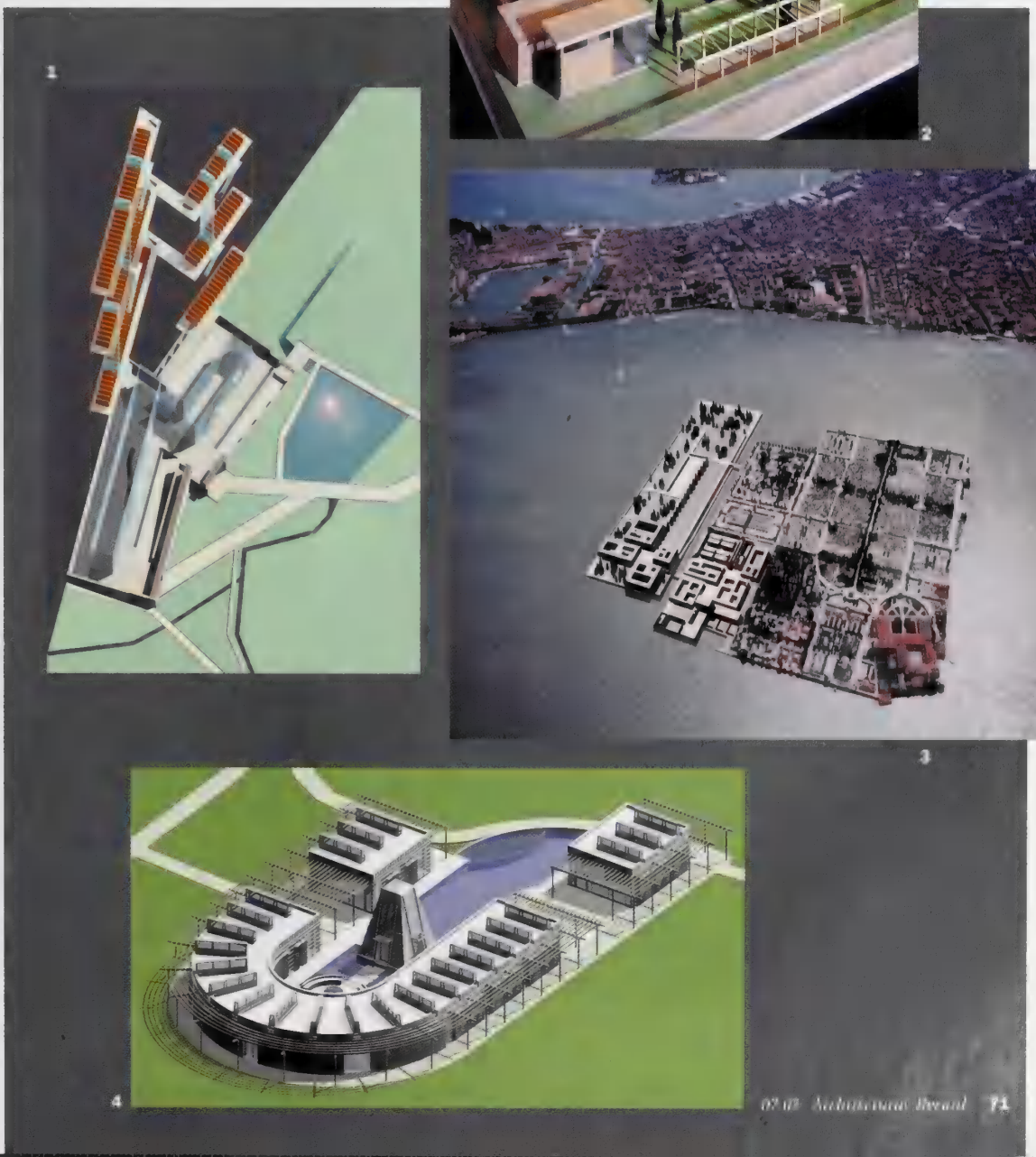
1. Memorial Park and Columbarium, Seoul, Korea
Kyu Sung Wu Architects
Completion date: 2004
With land-use problems plaguing Korea, its prime method of interment is shifting gradually toward cremation. This repository will house the remains of 50,000 people and accommodate up to 30,000 daily visitors. The extensively glazed structure reinforces connections with nature, while allowing for privacy and diverse practices of mourning and remembrance.

2. New Mausoleum, Mountain View Cemetery, Oakland, Calif.
Alexander Gorlin Architect
Completion date: 2003
Respecting their picturesque setting in a 1863 Frederick Law Olmsted–designed cemetery, this chapel and mausoleum, with crypts, sarcophagi, and a columbarium, recall garden structures. A reflecting pool, framed views, and cypress-edged pathways around the 20,000-square-foot complex offer places for meditation.

3. Island Cemetery, Venice, Italy
David Chipperfield Architects
Completion dates: 2007 (Phase I), 2013 (Phase II)
Venice faces a crisis as its cemetery island of San Michele pushes its spatial limits. This condition persists despite the city's age-old practice of leasing burial space for a limited number of decades and then moving the remains to an ossuary. Phase I of Chipperfield's plan will expand San Michele Island, and Phase II will create an adjacent new cemetery island.

4. Green-Wood Cemetery Mausoleum Addition
Brooklyn, N.Y.
Platt Byard Dovell Architects
Completion date: 2003
For this 1838 cemetery, a four-story, 20,000-square-foot, above-ground addition to the Hillside Mausoleum will provide much-needed space, with shingled glass atria integrating indoors and out. ■







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Snapshot





The Artcamp tents (this page) are permanent, rentable dwellings at a campground in the Netherlands.

Social sculptures make a statement in canvas

By Ingrid Whitehead

"If there's one thing I don't understand," said artist Dre Wapenaar at last year's Aspen Design Conference, "it's the behavior of people." In an attempt to discover what makes us enigmatic humans tick, Wapenaar changed his work 15 years ago from passive sculptures to interactive, public structures. "I make tents," he says, "and I rely on my tents to help me understand the interaction between people."

Despite the fact that Wapenaar's structures are conceived for mundane activities, which he carefully analyzes (sleeping, drinking beer, selling flowers and newspapers, taking a shower, even birthing and mourning), they are not at all typical of ordinary tents. You can't move most of them without a crane; they don't fold up conveniently; and they are hardly inexpensive, portable dwellings. They are, instead, seductive public sculptures, enclosures that invite people to enter and engage in a physical dialogue. Wapenaar's tents use design without decoration to orchestrate encounters between people and elevate the quality of their experience.

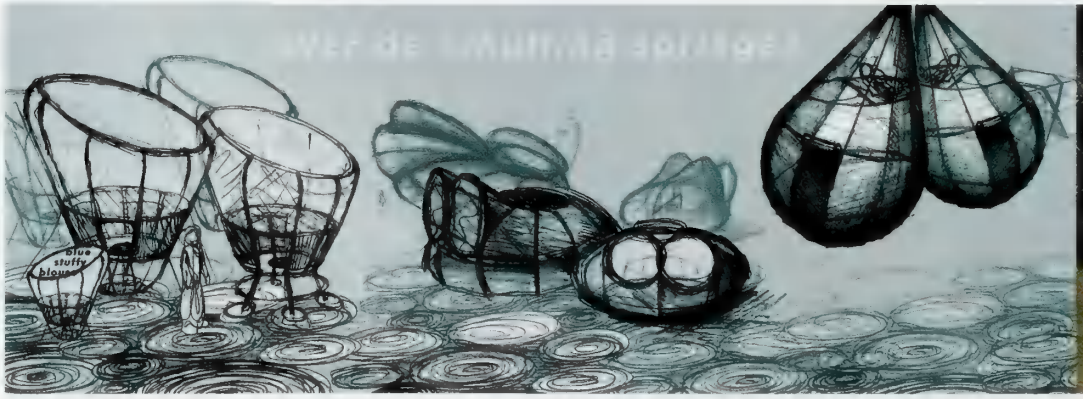






The Newspaper Kiosk (above) was commissioned as art but successfully functioned as an indoor retreat for people to browse and read newspapers—an intimate moment shared with others. The TreeTents (below) sleep four and serve as dwellings for families to rent by the night at a campsite in Holland.

Although many of Wapenaar's projects have been funded as art by the Dutch government and other official sources, some patrons include forward-thinking individuals with enthusiasm for the practical and functional benefits of his work. A pair of Dutch campground owners, Roel and Janneke Selderijk, saw Wapenaar's tents, including his NewspaperKiosk (above) and his FlowerKiosk, and commissioned a group of round, multicolored dwellings, dubbed "Artcamp," which are rented out by the night to travelers. The Selderijks also purchased three of Wapenaar's TreeTents (photo and drawing below) for the camps. The inspiration for the figlike pods came from a group of British environmental activists who call themselves "Road Alert" and live in or around trees in old-growth forests, braving the destructive approach of chain saws as long as possible. Wapenaar wanted to provide these protestors with shelter that could be attached to the trees. Nine feet in diameter, the polyester-







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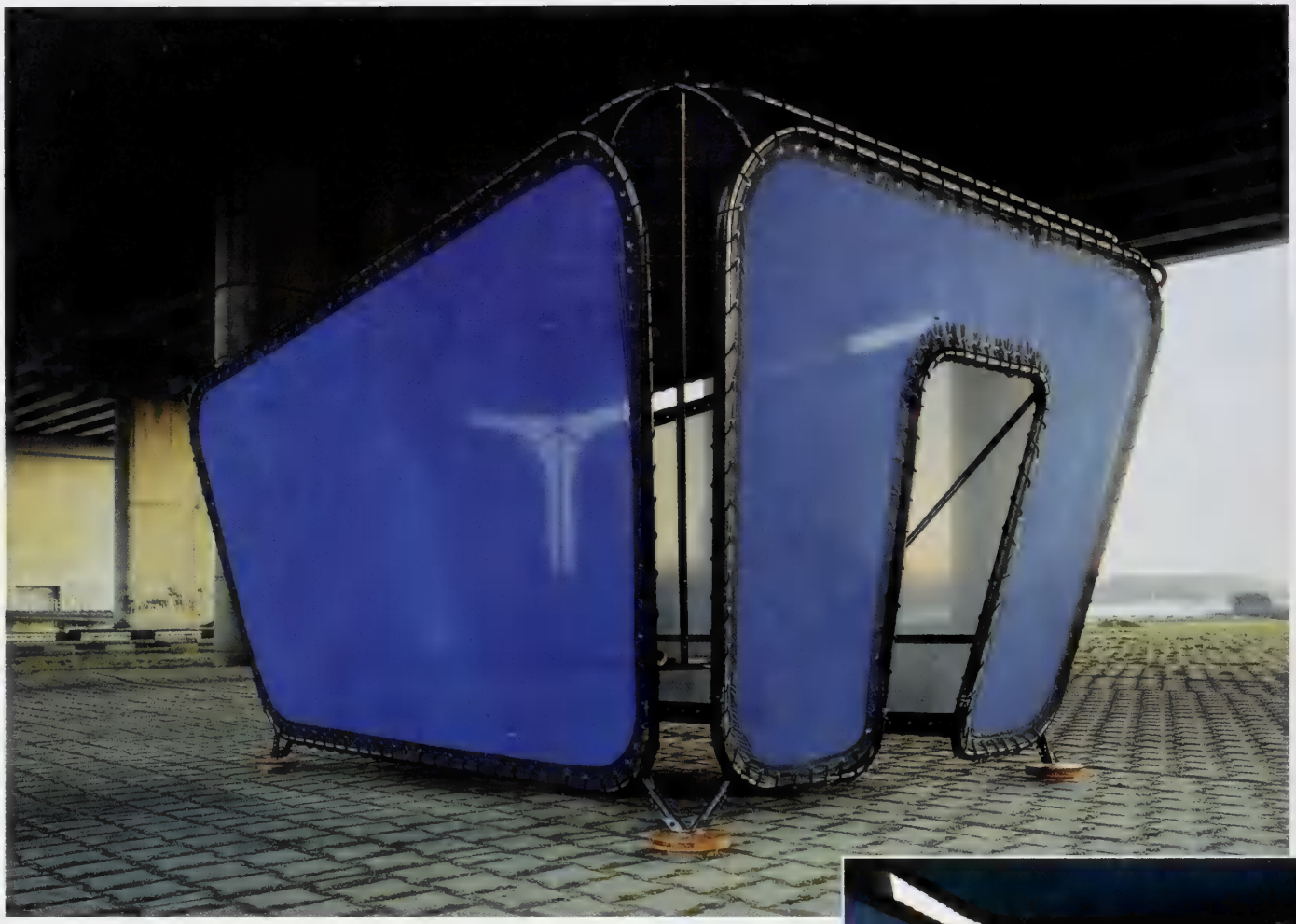
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Wapenaar's DeathBivouac (this page) and BirthingStand (not shown) deal with the more emotional sides of human experience.

canvas tents sleep four people each, and for $25 per night, delighted campers can climb the 12-foot stepladder and sleep soundly, only threatened by the wind, which may rock the tent gently from side to side.

Wapenaar's newer works, while still focusing on practical experience, have moved more toward the emotional side of human interaction. His DeathBivouac (this page) contains a central, suspended platform for a coffin, while the surrounding semitransparent fabric screens provide a light and private space in which the bereaved can bid goodbye to a deceased loved one. His BirthingStand tent holds a specially designed, hammocklike wheel for the mother to hang in as she gives birth naturally, with the help of gravity.

Wapenaar, who sleeps in a tent called WinterBivuoac within his Rotterdam loft, continues to explore the creation of alternative spaces in which to experience familiar human events. He uses canvas as a versatile material well suited to the play of light and transparency and to experimentation with volumes. He is currently working on a new tent, a WetnurseTent. "An old idea, the wet nurse," he says, "put into a new jacket. Wasn't this how women did it, a few centuries ago?" ■

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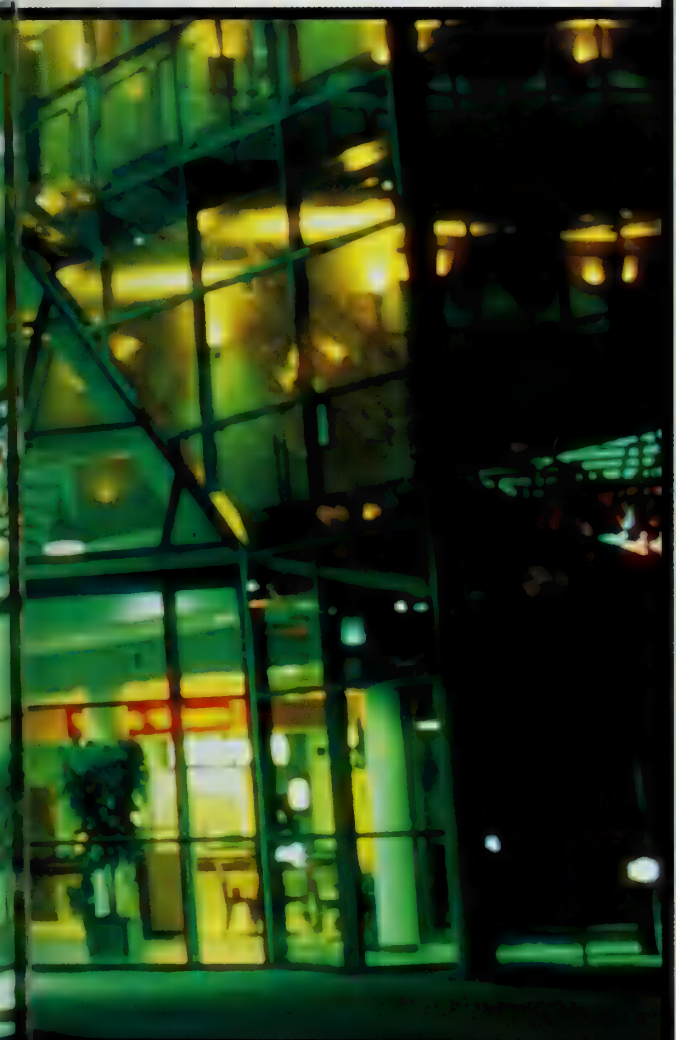
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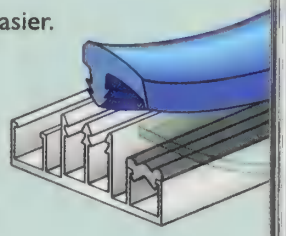
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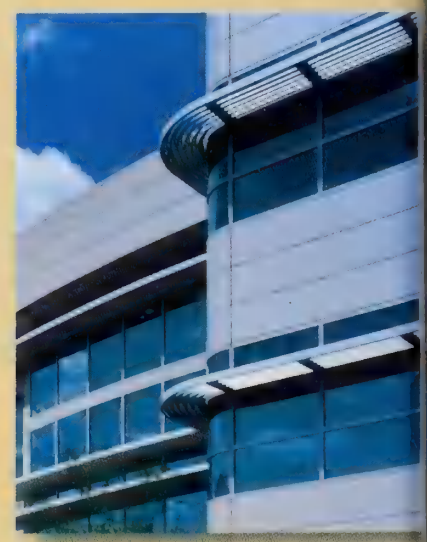
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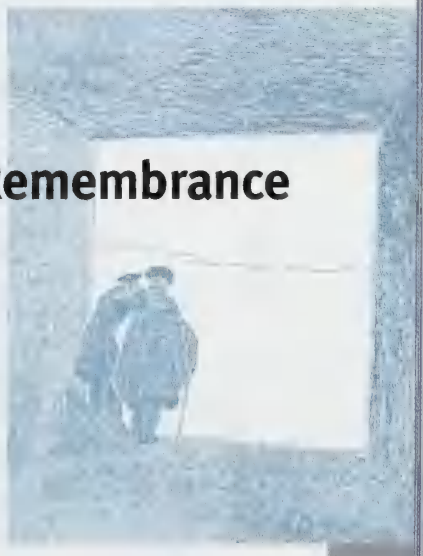
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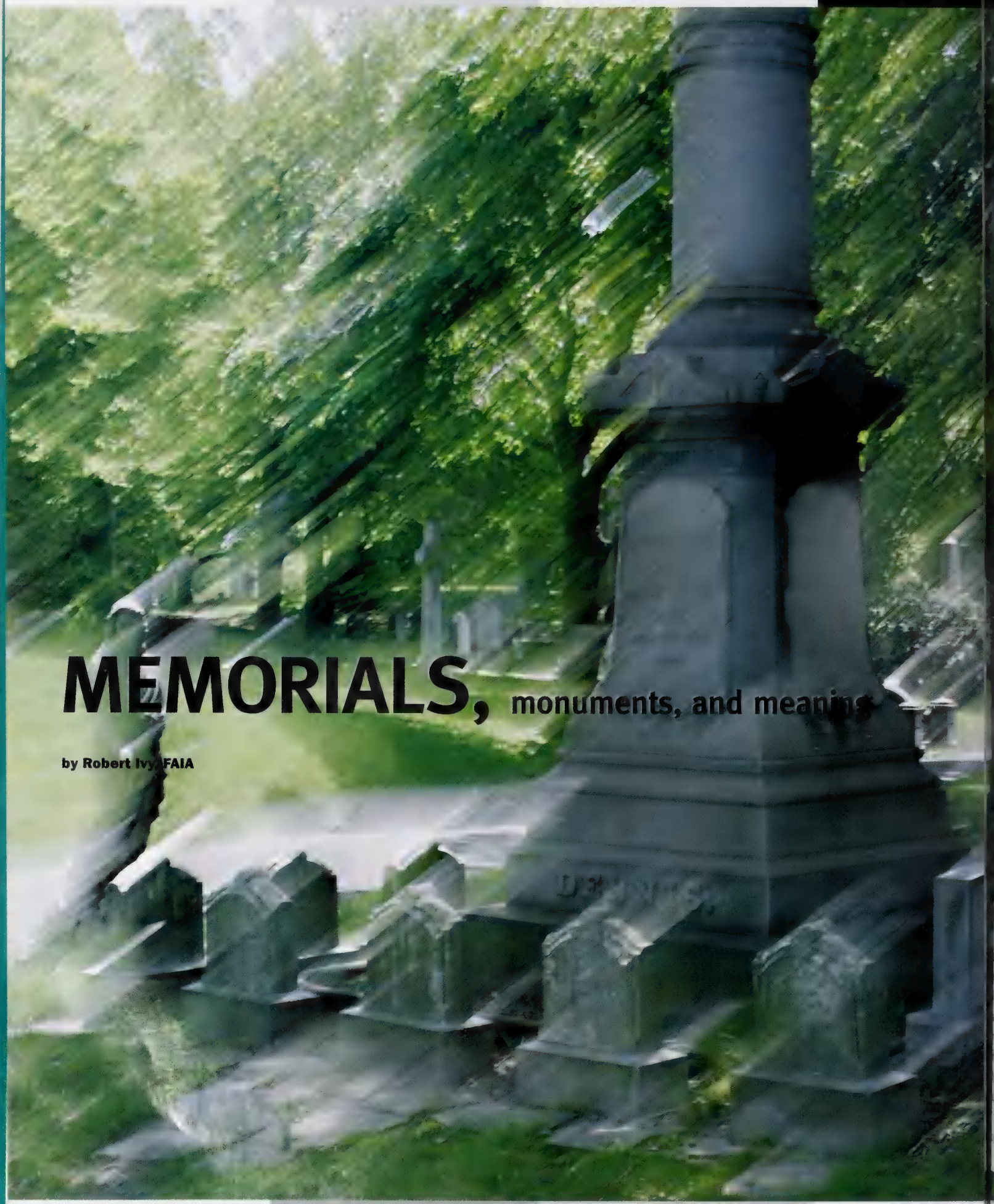
HOW DO WE REMEMBER IN STONE, STEEL, AND GLASS WHAT IS, BY NATURE, FLEETING?

In the third century B.C., the Greek philosopher Epicurus wrote, "It is possible to provide security against other ills, but as far as death is concerned, we men live in a city without walls." Reflecting perhaps the impossibility of the task, we repeatedly erect walls to honor the dead and remember their lives. The nature of these structures has changed over time, from stone pyramids to sculpture-encrusted monuments to glass-and-steel constructions. The need to memorialize, though, is eternal.

We at RECORD approached the topic of remembrance with a fair amount of trepidation. In the wake of the September 11 terrorist attacks, engaging the subject brought with it responsibilities not easily met. But neither were these responsibilities easily ignored. Architecture is important because it gives form to what we most deeply value: home, justice, spirituality, honor. This month's magazine shows how contemporary architects in different countries are wrestling with the profound dilemma of remembering in stone, steel, and glass what is, by nature, fleeting.

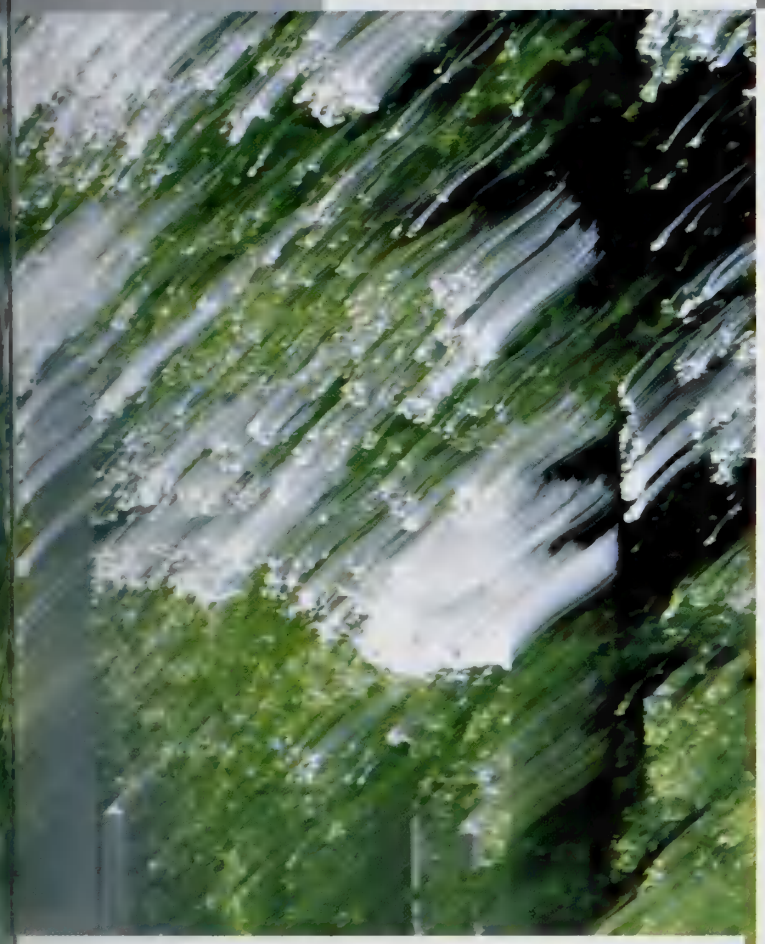
Our special coverage begins with an essay on the design of public monuments, providing some historical perspective on a perennially controversial topic. We then present seven completed projects: a memorial garden, a mortuary, a funeral chapel, several buildings at cemeteries, and a museum that honors the spirit of a young girl who wrote about life in the shadow of death. We close our coverage with two articles that examine America's responses to the horrific losses at Oklahoma City and the World Trade Center: one an interview with an expert on grieving and the other a critical look at the planning process for Ground Zero.

Although we often try to ignore the unpleasant fact of our mortality, the projects in this issue show that architects can create beauty in response to death. *Clifford A. Pearson*



MEMORIALS, monuments, and meaning

by Robert Ivy, FAIA



wo vast and trunkless legs of stone
and in the desert. Near them, on the sand,
alf sunk, a shattered visage lies ...
nd on the pedestal, these words appear:
ly name is Ozymandias, king of kings:
ook on my works, ye Mighty, and despair!' "

zymandias
rcy Bysshe Shelley

How do we, the living, recall the dead? How do we signal the people or places that altered history? How do we institutionalize pain? How do we signify what matters to our civilization? The questions sound abstract, yet in this fractious, dangerous world, the issues nfront and confound us with urgency, and architects find themselves at e center of the debate. Not all solutions are architectural, however.

Society knows that we will remember what we are reminded of; tory, whether oral or written, is a structured narrative that reforms the st, interweaving memory and experience into a singular tale, says Craig rton in his book, *Sites of Memory*. When we build for remembrance's e, we recast history—from objects to whole cities. Barton refers to the ocess as "the codification of memory," an idea apparent in symbols as vious as the great St. Louis Gateway Arch, which leaps toward Manifest stiny and the opening of the American West. Our traditions, our prej-ices, and our beliefs flow from such constructions.

Historically, remembrance has been central to architecture. For ore than five thousand years, architects have made monuments to the dead, to glorious battles, and to ideas. Ironically, the earliest and grandest abide. Despite ancient social upheavals, shifts in pharaonic power, unification and dispersal of Upper and Lower kingdoms, Hellenism, Rome, Islam, and the birth of the modern state, Khufu's monumental pyramid (ca. 2500 B.C.) still stands, a memorial to the god-king and a monument to ancient Egypt's collective genius. In death, Khufu traveled to other realms; in life, only the stones remain.

Jump to the 20th century. Spoleto Festival, 1997, outside Charleston, South Carolina. At McLeod Plantation, the landscape architect and artist Martha Schwartz hung multiple cotton sheets arrayed near the houses of former slaves. As the day progressed, the fabric scrim altered with changing light; morning and evening breezes animated each piece

MEMORIES SHIFT OVER TIME, MUCH LIKE THE LIGHT AT MCLEOD PLANTATION.

and changed its form. Animate, poetic, Schwartz's art installation stirred emotions within the viewer and provoked speculation in an unexpected way about slavery—both about the system itself and the contributions of slaves to material culture.

The two illustrations underscore the differentiation between two apparently similar words, monument and memorial. While linguists might debate the distinctions, fundamentally a monument comprises a designed and constructed physical object intended as a commemoration. Memorials that celebrate or grieve may take a more ephemeral form—including the strewing of flowers in memory of the deceased, such as occurred during the Mémorial Day/Decoration Day movement of the 19th century or the free-form floral outpouring at the gates of Kensington Palace following the death of Princess Diana. Both involve the physical world, both involve remembrance.

While structures may house ideas, it is people who actually do the remembering, and people vary. The vastly differing populations comprising the early Egyptians and 20th-century museumgoers each carry the baggage of time; location; political, social, and cultural history; and religion that author James Young in *The Texture of Memory* calls "collected memory." Each person brings to the memorial experience a personal set of expectations—not a reflection of zeitgeist so much as a composite of emotion and recollected thought—that the effective memorial recalls. Those memories shift over time, much like the light at McLeod Plantation.

Perfection and placement For millennia, formal perfection and







1. Oklahoma City National Memorial, Butzer Design, *photo by Timothy Hursley.* **2. Korean War Memorial, Maya Lin,** *photo by Wally McNamee/Corbis.* **3. Cenotaph for Newton,** *photo by Leonard de Selva/Corbis.* **4. World War II Memorial,** *photo by AFP/Corbis.* **5. Brion Vega Cemetery, Pugh & Scarpa,** *photo by L. Scarpa.* **6. FDR Memorial, Spacemaker Press,** *photo by Alan Ward.* **7. Civil Rights Memorial, Maya Lin,** *photo by John O'Hagan/Southern Poverty Law Center.* **8. Chikatsu Asuka Museum,** *photo by Shigeo Ogawa.* **9. Cleopatra's Needle,** *photo from Bettmann/Corbis.* **10. Spoleto Festival,** *photo by Martha Schwartz*

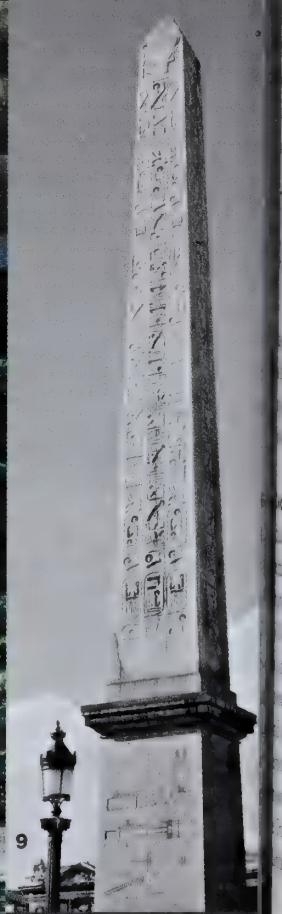














emory have been linked. As at Khufu's pyramid, monumental architects ve always relied on ideal forms, such as those derived from Platonic the- y in ancient Greece, to mimic heavenly purity. Columns, for example, ggested transcendence. The semiotic messages embedded in Cleopatra's edle or the Washington Monument offer a Freudian concatenation of eanings: conqueror, marker, phallic symbol, he/she who overcomes avity, skyscraper, imperial might.

Such formal perfection continues to inspire the designer. Cubes d spheres—as seen, for instance, in Boullee's Cenotaph to Sir Isaac wton—have attracted generations of admirers, including the architects the recent Rose Planetarium at New York's Museum of Natural History. rapped and lighted from within, Michael Graves's Christo-like renova- n robe for the Washington Monument vivified an iconic obelisk. ansformed, we could see the familiar through new eyes.

Perfection demands the perfect site. It was the picturesque ovement in the 19th century that placed historicist mausoleums in ling green parkland. These idealized settings, such as Brooklyn's Green- od and Boston's Mount Auburn cemeteries, heightened experience for ir middle-class visitors and served as precursors of the parks move- nt. Today, in a world of cryogenics and hegemony of the virtual, as

FIXITY IS A FUNCTION OF POWER." HOSE WHO "MAINTAIN PLACE ... RE POWER BROKERS ..."
—HOUSTON BAKER

d becomes more scarce, the mausoleum is returning. Today, scientific vances permit hi-tech, on-demand encounters with the loved one, who ears on-screen with a final message for visitors. In the 21st century, e and science conquer all.

olution of meaning Memorials shift in meaning as generations nge. Time alters understanding and blurs memory; architecture nains. According to James Young (and Shelley), "Monuments that resist nsformation risk losing their significance to future generations." lowing the immediacy of loss, when grief has thinned or disappeared, inevitably begin to appreciate the monument or the memorial for its re abstract qualities. Ultimately, time may blur our collective vision l we may entirely forget the events that generated the memorial, so noved from our lives or so potent has the architecture or the symbol wn. Although few persons might know the historical roots of the Arc Triomphe as a representation of Napoleonic victories, today everyone ntifies the arch with the city of Paris.

ed power Monuments may be fixed or temporary. In writing about the blues (in *Blues Ideology and Afro-American Literature—A Vernacular Theory*), Houston Baker addresses stability. According to Baker, "Fixity is a function of power." He states that those who "maintain place, who decide what takes place and dictate what has taken place, are power brokers of the traditional." The rootless, the "placeless," by contrast, find other, more "fluid" ways of memorializing. To Maya Angelou, as she says in her novel *I Know Why the Caged Bird Sings*, rather than any buildings or monuments, the poetry of preachers and the blues epitomizes African-American memorial making. To Baker, the crossroads becomes the symbol where art and memory conjoin.

Thus, the Vietnam Memorial on the Mall in Washington, a fixed, evocative monument, represents the tragic consequences of war by the nation-state. By contrast, the AIDS quilt, "nomadic, portable, constantly being added to," formed a temporary installation that was spread on the same Washington soil occupied by the Vietnam Memorial. Both affected the American conscience and consciousness, through two different means. Both resonate today, although only one remains in place.

The resolution of a memorial depends on who tells the story. Monument building, like museum design, can be construed as a political act, controlling the narrative of actual events, determining the sequence of experiences, and interpreting them for subsequent generations. Digital guides and video-speak round out the story, much as guides or interpreters at historic sites like Chartres Cathedral tell us their history and thereby frame our understanding of events. Their narratives reflect controlled authorship and ownership of ideas.

In a democracy like our own, split wide open by the Internet, everyone has a say. Architecture's role becomes one of "repository of our collective and individual cultural history and memory," says author Craig Barton. Reductivist in nature, architecture compresses and contains history in a single place at one time, while democratizing forces that surround us in cyberspace may call for dispersal across time and space. James Young encourages the search for the "art of public memory," a process that engages audiences in the making and the viewing, creating a dialogue that transcends the mere appearance of any memorial.

The true cross What is the significance of a real, historic artifact to a memorial? The Van Alen Institute has debated how much actual pieces of the past lend authenticity or "weight" to monuments. Is that shard in fact a remnant of the "True Cross" that animated so much furor in the Crusaders? Isn't a representation of the cross, like the homemade versions planted along America's highways marking a tragedy, equally moving to believers?

Some sites blend media to probe authenticity. In Amsterdam, at the Anne Frank House, the visitor passes by an orchestrated pathway through the actual chambers inhabited by the Frank family from 1942–1944. According to careful design, space after space *(continued on page 214)*

MEMORIAL G
STUTTGART, GE
MICHAEL SINGER,
LUZ AND PA
LANDSCAPE DES

A GARDEN for Survivors



Four openings frame views of the garden, which was designed as one piece in a plan by Luz and Partner to tie a series of city parks together.



The sound of running water plays like a musical score in the outdoor rooms that form a small memorial garden in Stuttgart. But wherever visitors look they see only still water sitting in pools made of granite, concrete, and roughly textured pieces of cast bronze. Hiding the moving water behind and underneath hard surfaces of stone, metal, and wood, the sculptor and environmental designer Michael Singer creates a subtle tension between sound and sight, which heightens the impact on both senses.

Singer designed the garden in a neglected piece of Killesberg Park as part of an international horticultural exposition hosted by Stuttgart. When the artist first saw the one-acre site at the foot of a hill and the edge of an apple orchard, its main features were two sad streams converging in a ditch. At the time, Singer was working on a sculpture in his studio in Vermont called *Map of Memory*, and he decided to apply some of the motifs



in that piece—including remembrance, enclosure, and layering—to the garden in Germany. After selecting the site, Singer learned that the hill right behind it was created nearly 50 years before from the rubble of buildings destroyed during World War II. Memory seemed an appropriate theme.

The project begins with the two streams flowing into a shallow trough cut into a stone walkway, the only place water is seen moving. The trough leads to a double barrier—a trellis planted with clematis and an adjacent oak wall—which defines the garden proper. Four openings in the wall provide access to the garden, where a set of irregular pools, channels, and steps cut into the ground. "The openings frame possibilities," says Singer. As he does with many of his sculptures, the artist repeats certain forms and textures in different materials; for example, casting bronze and concrete fro molds of stone or wood pieces used elsewhere on the grounds.

For an inscription on a granite tablet in the garden, Sing selected an early 19th-century poem by the mystical Jewish sa Nachman of Breslow, which was found on a wall in the Warsaw Ghetto i 1945. "The world in its entirety is a narrow bridge, the main thing is not t be afraid," it reads. Singer calls the garden "a place to remember those wh survived," including but not limiting the memory to people who live through the Holocaust. Long neglected and pushed up against a hillsid made of the detritus of war, "this is a place that itself has survived," sa Singer. *Clifford A. Pearson*



Still water serves as one layer in a composition that includes cast bronze, concrete, granite, and wood, along with plantings.

BETWEEN EARTH AND SKY A mortuary under wat

LEÓN TANATORIO
LEÓN, SPAIN
BAAS ARCHITECTS



reates an **OTHERWORLDLY REALM** for mourning



The architects won over neighbors of the mortuary by slipping the 345,000-square-foot building under a large reflecting pool.

By David Cohn

Set on the edge of a new residential development in Leon, in northwestern Spain, the *tanatorio*, or municipal mortuary, must serve the grieving and the dead without alienating the people living nearby. Indeed, Barcelona architect Jordi Badía won the job to design the mortuary by proposing to bury the building and cover its roof with a reflecting pool. "If there is no built volume, there is no basis for the neighbors' rejection," he reasoned. This scheme not only minimizes the impact of the facility but provides a repertoire of formal and tactile strategies that Badía employs to create a respectful, sheltered environment for mourning.

The *tanatorio* combines the functions of a city morgue and public mortuary. Its public functions take place in a chapel and 10 vigil rooms, where family and friends gather for wakes, accompanying the deceased during the hours before the funeral mass. Badía conceived the building as a set of counterbalanced references—to interment and aspiration, earth and sky, weight and lightness, openness and intimacy. These references may seem clichéd, but as visual and sensory presences they are quietly effective. Badía compares the building to a large tomb, or "tomb of tombs," an allusion to weight that he offsets with the rooftop pool that reflects the sky. The long rectangular tomb is revealed by an excavation along the street, a gentle slope that exposes the concrete slab of the pool floating above a continuous window wall. Angled concrete "fingers" emerging from one end of the pool bring daylight into the chapel and call attention to the building's entry. Badía compares these elements to an emerging hand, but they read as a more abstract expressive gesture, as in some of the late work of Le Corbusier.

A wood-decked ramp takes visitors below grade to a set of oversize pivoting glass entry doors, silk-screened with images of clouds. "Because the doors are so large, you don't open them completely, so you have the sensation of slipping behind a screen," explains the architect. Inside, a large, luminous foyer runs the full length of the building and provides access to the vigil rooms. Furnished with upholstered sofas and armchairs, the foyer serves as a public yet informal space. Large V-shaped pillars, which bear the weight of the water above, assert a muscular presence in contrast to the domestic character of the wood floors and the transparency of the window wall along the entry facade. Opposite this wall, panels of shattered glass mark the entries to the vigil rooms and transmit daylight from six sunken patios.

The vigil rooms are like small suites with sofas, end tables, carpets, and walls finished in quiet tones of off-white and gray. These intimate spaces look into the sunken light courts, which feature small pools of their own. In the chapel, tall light scoops—one of which focuses a dramatic beam on the altar—help distance the space from the everyday world. Like the vigil rooms, administrative offices cluster around a sunken light court.

The furnishings reflect the conflict inherent in moving a private rite into a public space. Sofas, carpets, and lamps recall a hotel lobby rather than a religious setting. Badía's architecture is curiously timeless, as if the vocabulary of Modernism had remained unchanged since the 1960s. But his overall design overcomes this weakness. By burying the building, he creates an appropriately isolated, otherworldly realm. And by filling this realm with light, he creates a setting that is bright and serene, not heavy or macabre. ■

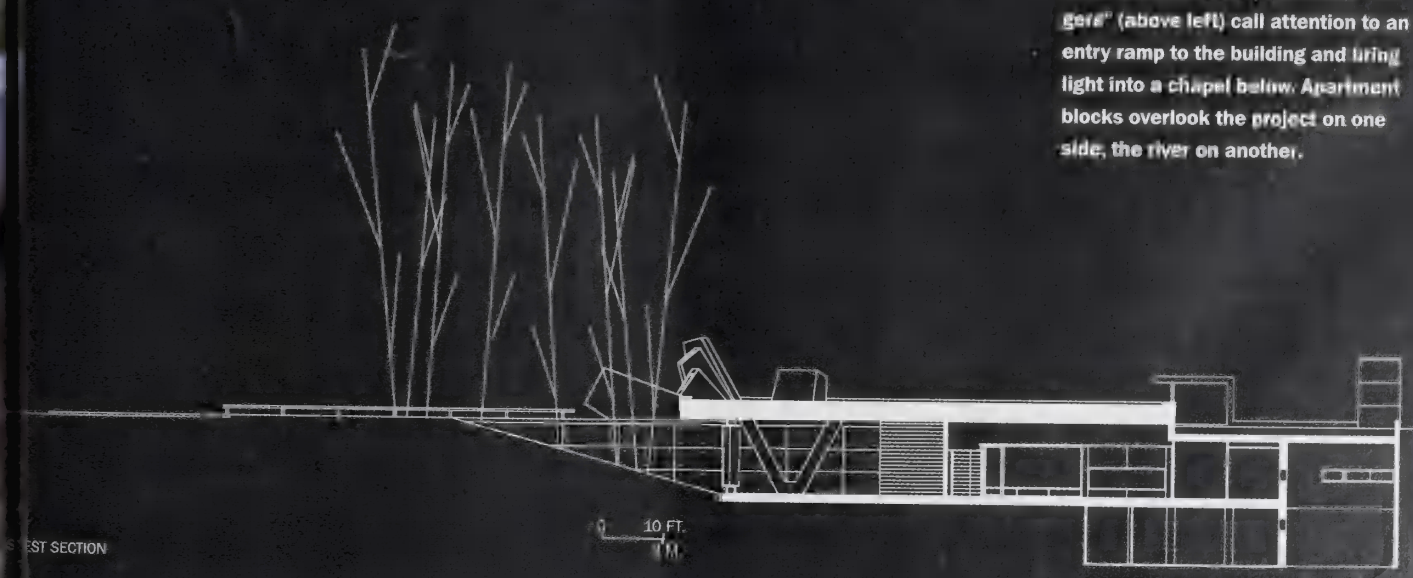
David Cohn is Architectural Record*'s Madrid-based correspondent.*

Project: *Leon Tanatorio, Leon, Spain*
Architect: *BAAS Architects—Jordi Badía, Josep Val, lead architects; Marcos Catalan, interior designer; Albert Cibiach, Elena Valls, Tirma Balaguer, Lluis Vitori, project team*
General contractor: *Construcciones Begar*

For more information on this project, go to Projects at **architecturalrecord.com**

PHOTOGRAPHY: © HUGNI FONS

Sunken courts within the reflecting pool (above) bring daylight to vigil rooms below. Each court has its own small pool (not seen). Concrete "fingers" (above left) call attention to an entry ramp to the building and bring light into a chapel below. Apartment blocks overlook the project on one side, the river on another.



EST SECTION




1


2

3


4



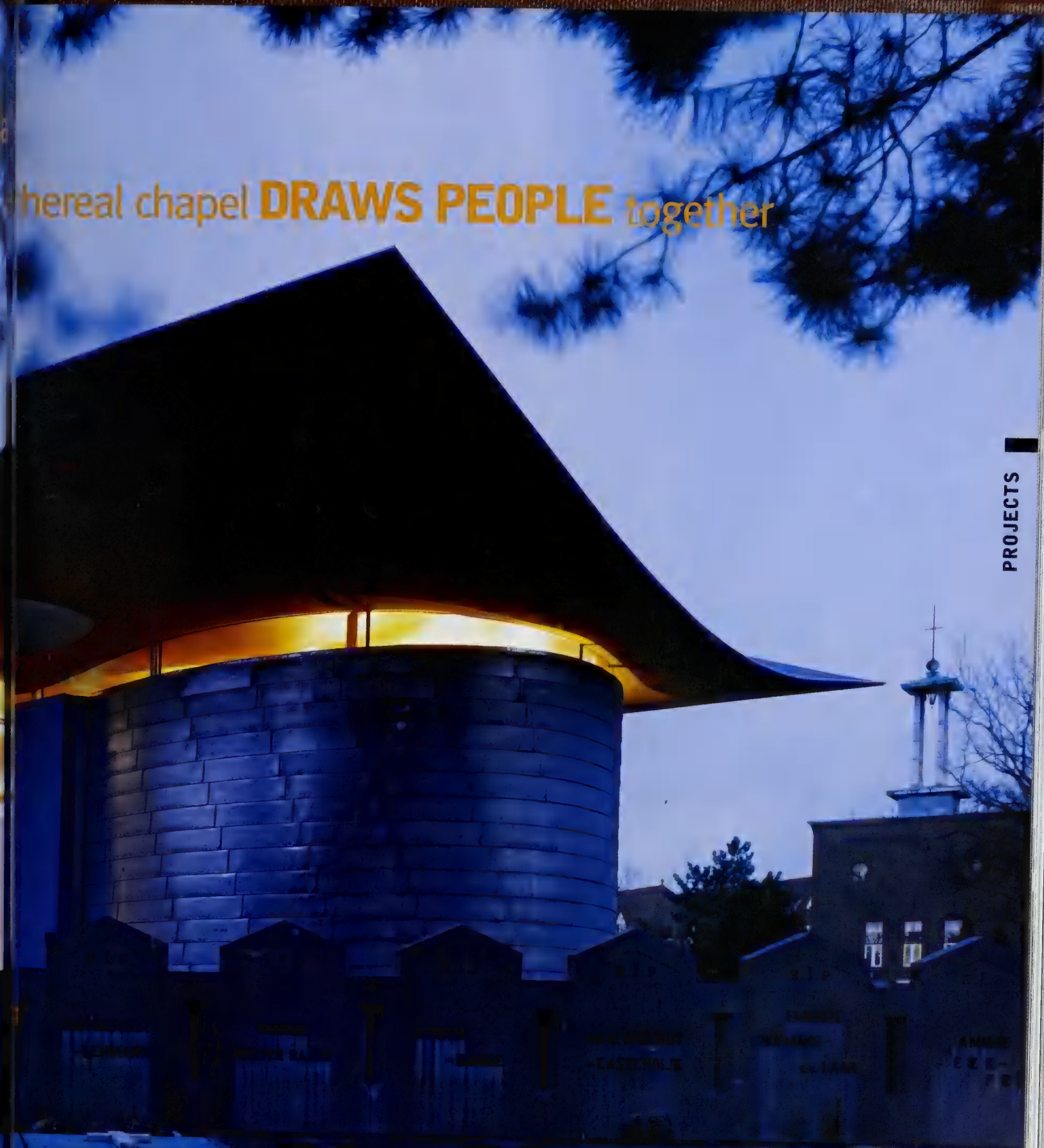
The architects used a repertoire of abstract forms and simple materials to give the chapel (above and 4) a quiet spirituality. Concrete chutes bringing sunlight into the space add to the effect. The main foyer (5) runs the length of the building and offers informal places for mourners to sit and gather. All of the vigil rooms look onto sunken courts (1), a poetic device that allows the mourning spaces to turn inward while still taking advantage of daylight and private views. Vigil rooms (3) are furnished with chairs, sofas, tables, and carpets, which give them an almost domestic—but perhaps slightly dated—feeling.

WINGED SPIRIT in an old Dutch cemetery, a

CHAPEL OF ST. MARY OF THE ANGELS,
CEMETERY OF ST. LAWRENCE
ROTTERDAM, THE NETHERLANDS
MECANOO ARCHITECTEN



hereal chapel **DRAWS PEOPLE** together

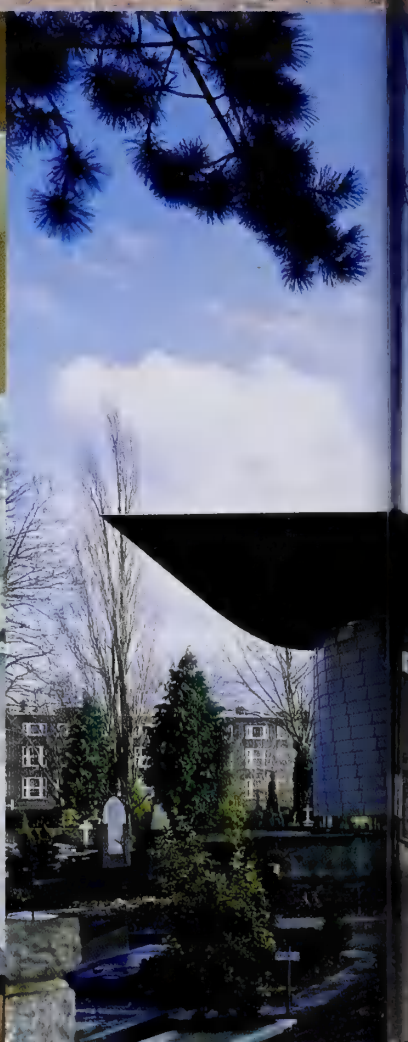


Set in a cemetery begun in the mid-19th century, the chapel points in a new direction—more ethereal, less earthbound. Materials such as glass and tin-coated copper shingles contribute to this effect.



At 1,300 square feet, the chapel can accommodate both small groups and as many as 100 people. Mourners can also congregate under the roof and hear services. A drawing (opposite) shows the new chapel within the footprint of the original neo-Gothic one.











PHOTOGRAPHY © CHRISTIAN RICHTERS

By Tracy Metz

Angels greet with silent song the visitor who enters the Catholic Cemetery of St. Lawrence in Rotterdam. Look up as you come through the gate, and there among the grays and greens of moss and stone is a flash of gold and royal blue. The colors of kings, and, perhaps, heaven.

When the St. Lawrence cemetery opened in 1860, it was on the edge of town. As Rotterdam grew, the cemetery became a green oasis in a blue-collar neighborhood. In commissioning a new funeral chapel from architect Francine Houben of the firm Mecanoo, parish authorities knew the resulting design would not bow to false traditionalism. The challenge, says Houben, was to create a space in which 10 mourners would not feel lost, but which could also accommodate 100. And for the occasions when there are many more, a gravel-covered space under the roof (with built-in speakers) serves the overflow.

The architect envisioned the chapel as a continuous wall floating beneath a roof. On the outside, it's a broad band of tin-coated copper shingles wrapping around a steel frame; on the inside, it reads as a seamless stretch of bright blue drawing the space together. Circles of polished blue-gray stone in the sanctuary floor mark the places for priest, coffin, and mourners. In the tradition of a true *gesamtkunstwerk*, Mecanoo designed all the furnishings, the backless wooden benches, and the tall metal uplamps. A curving silver screen behind the priest's copper lectern bears a series of intense portraits by the Belgian artist Mark Deconink.

The new chapel crowns a rise where two predecessors had stood: a neo-Gothic one built when the cemetery opened and one from 1963. Each, however, gradually sank into the soggy ground and had to be razed. Mecanoo's chapel is located within the footprint of the 19th-century structure, whose foundations now serve as both a retaining wall and a reminder of what came before. Chimes in the open-metal tower are remnants of the second church. The gold-colored roof with its curling eaves moves from paper-thin at the edges to thick in the middle, accommodating HVAC machinery. The most important contribution to the building's airiness, however, is the glass plinth running all the way around the top and bottom of the single flowing wall, making both the wall and the roof seem to float.

Small though it is, the building has two monumental, 16-foot-tall, pivoting doors, one leading to the sanctuary and one to the cemetery. Indeed, the structure seems to embody the transition from this world to the next. With its flowing form and winged roof, this diminutive chapel is light-handed and serene, joyous and reverential. ■

Tracy Metz is RECORD*'s correspondent in Holland and is the author of the book* Fun! Leisure and Landscape, *to be released in September by NAi Publishers.*

Project: *Chapel of St. Mary of the Angels, Rotterdam, the Netherlands*
Architect: *Mecanoo Architecten—Francine Houben, Francesco Veenstra, Ana Rocha, Huib de Jong, Martin Stoop, Natascha Arala Chaves, Judith Ligtvoet, Henk Bouwer, design team*
Engineer: *Adviesbureau voor Bouwtechniek*
General contractor: *Heb Bouw*

Sources
Copper shingles: *KME Benelux*
Furniture: *Werken van hout*
Concrete furniture: *Nemo beton*
Ambient lighting: *BEGA Nederland*

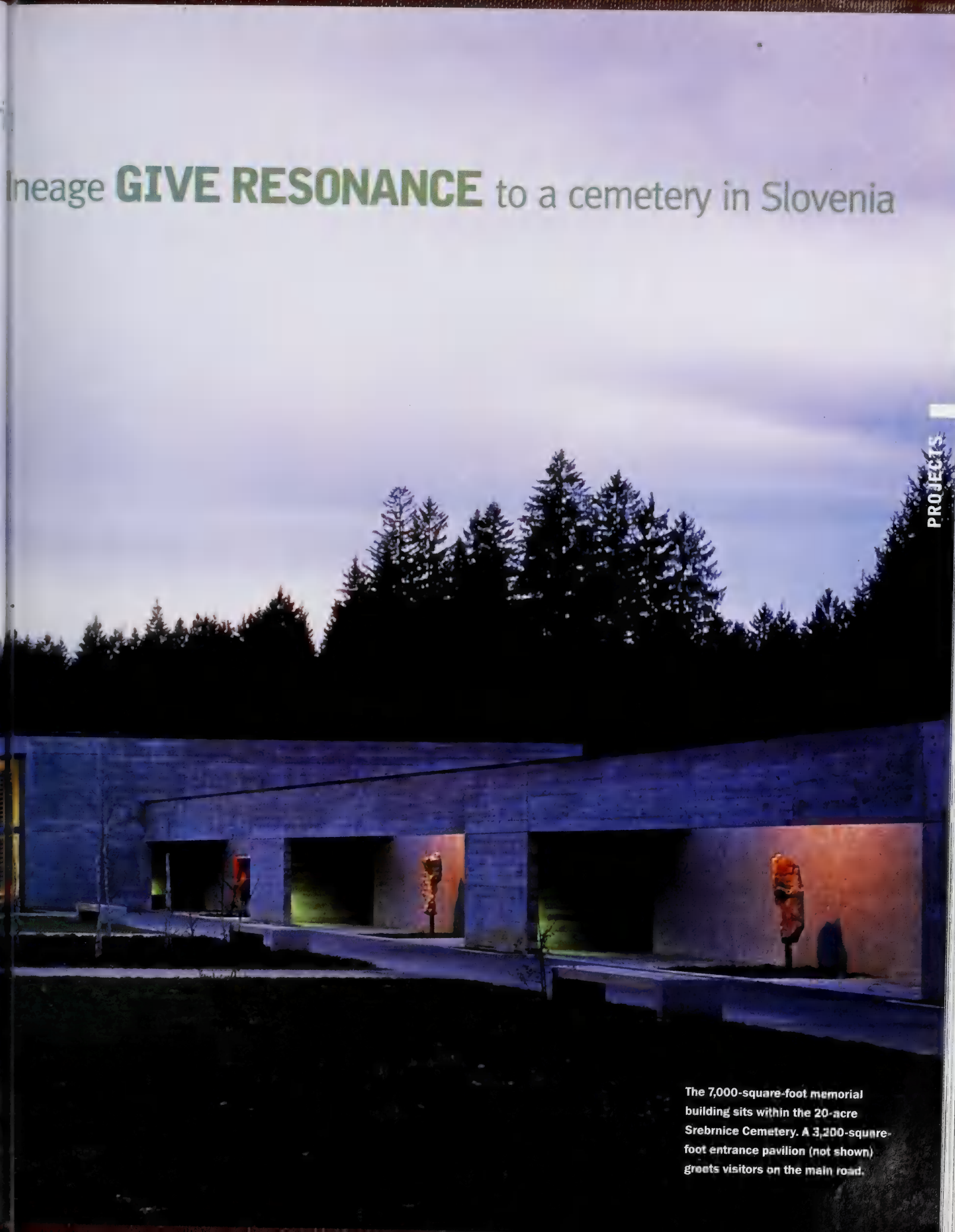
ARCHIVE *For more information on this project, go to Projects at* **architecturalrecord.com.**

A CLEARING IN THE FOREST Simple forms and a ric

SREBRNICE CEMETERY
NOVO MESTO, SLOVENIA
ALES VODOPIVEC, DESIGN ARCHITECT
ARHITEKTON, EXECUTIVE ARCHITECT



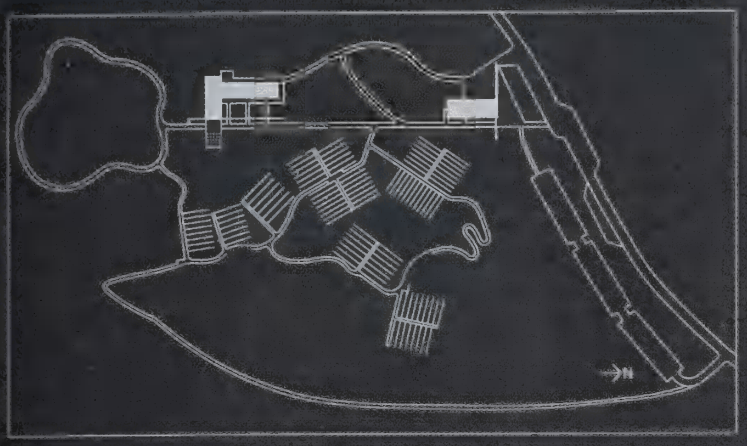
lneage **GIVE RESONANCE** to a cemetery in Slovenia



The 7,000-square-foot memorial building sits within the 20-acre Srebrnice Cemetery. A 3,200-square-foot entrance pavilion (not shown) greets visitors on the main road.



Integrating Classical and Modern antecedents, the memorial building engages the land (below). Chapels can be reached from patios (opposite, bottom). A service building (opposite, top) sits near the road.



By William J.R. Curtis

Ales Vodopivec designed Srebrnice Cemetery outside Novo Mesto, Slovenia, around the idea of a procession through the landscape. Starting with an entrance gate and service building, he crafted a view of a long, low portico in the middle distance emerging from a forest of fir trees. Then he created a memorial building with a transparent funeral hall attached to a row of concrete chapels—a composition that draws the visitor up a sloping path. A screen of wooden slats on slender steel supports guides the eye through the portico toward a gentle hill beyond. Visitors can enter the building through openings in the screen, which may be thought of as a funerary "veil." Using restrained, abstract forms and simple materials such as bare concrete and weathered wood, Vodopivec established a realm of geometrical clarity and measured repose against a backdrop of nature.

A group of 25 tightly spaced columns constructed—like most of the memorial building—of poured-in-place concrete, supports the long portico at its easternmost end. These slender columns evoke a sense of Classical order and imply a place of assembly in the landscape. Although visitors can go directly to the chapels set behind the freestanding wooden screen and looking onto simple patios furnished with benches and abstract sculptures, most people enter the building from the portico into the glazed hall. Rather than a somber place for mourning, this is a luminous room of remembrance. The architect's intention was to avoid quotations from any particular religious imagery and create a nonsectarian space. Although the current furnishings suggest a Christian church, these are not essential to the architecture. Srebrnice works along a knife-edge between the secular and the sacred. A communal building, it evokes the otherworldly through an idealized architecture of abstraction.

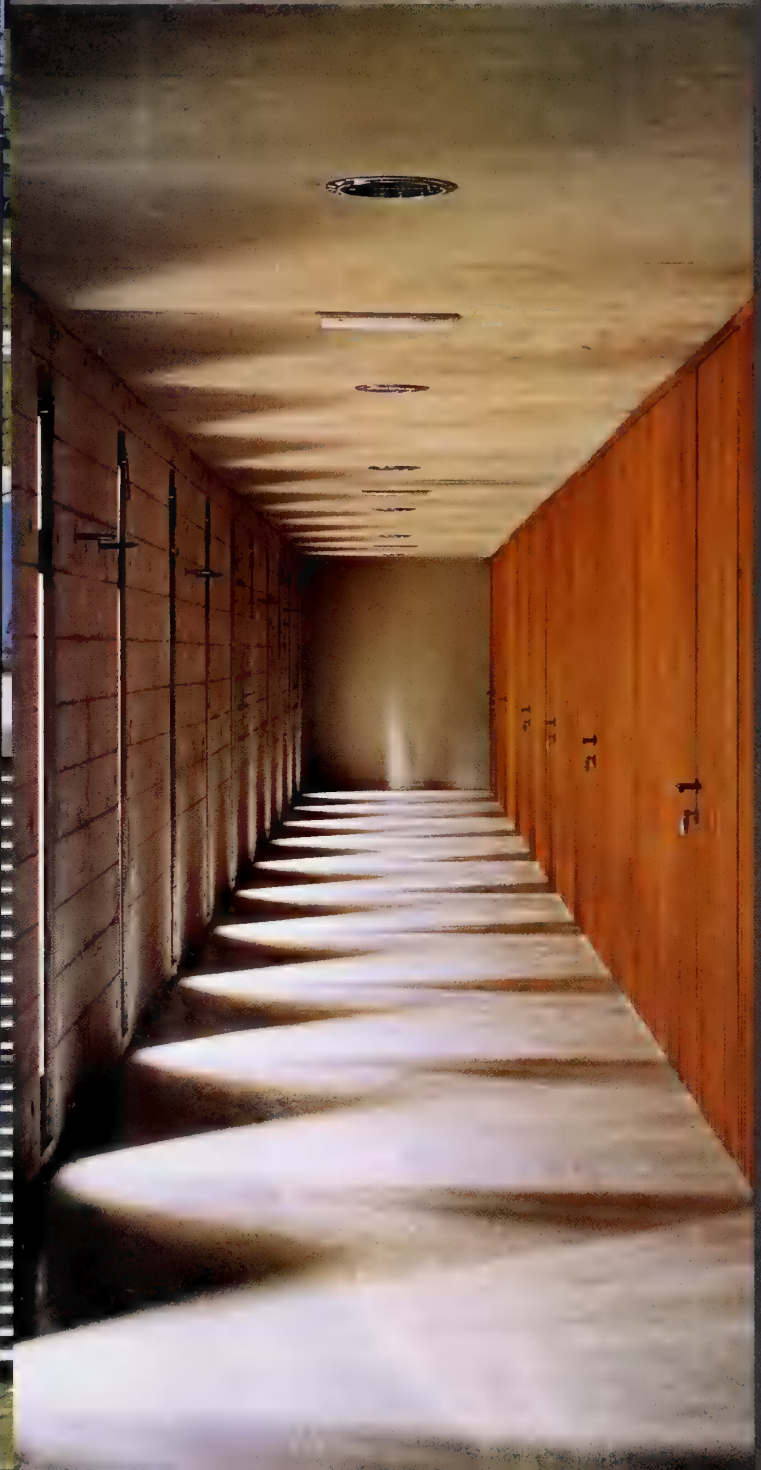
While the hall is clear and bright, Vodopivec modulated and dimmed daylight in the small chapels. Set behind intermediate light courts, the chapels ease the rite of farewell through subtle psychological nuances in the passage from one area to another. The palette of materials is restrained—concrete, weathered wood, glass, and some steel—but is used to strong effect. Never interested in passing architectural fashions, Vodopivec draws on a heritage that emphasizes a "passionate simplicity" and includes Tadao Ando's churches, Alvaro Siza's swimming pool at Leça de Palmeira (1960), Sverre Fehn's Scandinavian Pavilion in Venice (1963), Luis Barragan's landscape projects of the 1950s in Mexico, and, of course, the Barcelona Pavilion by Mies van der Rohe (1929). Such precedents are

William J.R. Curtis is the author of Modern Architecture Since 1900. *In June he published* Mental Landscapes, *a book of his own paintings and drawings.*









not worn like trophies but are absorbed into the body of the design.

This rich architectural heritage is one reason why it is inadequate to refer to Srebrnice in terms of the recent trend of Minimalism. For Vodopivec, simplification is a means for concentrating expression and distilling memories into a higher unity. At Srebrnice, one recognizes echoes of earlier burial grounds involving references to Classicism and ritual movement through landscape—Joze Plecnik's several cemeteries in Slovenia of the 1920s, Edward Ravnikar's extraordinary war memorial in the form of a "field of the dead" on the island of Rab in Croatia from the 1950s, even Asplund and Lewerentz's cemetery and crematorium at Enskede near Stockholm of the 1930s. Vodopivec, who is in his early 50s and teaches in the architectural school of the University of Ljubljana, sees himself as extending a lineage that stretches back through his own mentor, Ravnikar (1907–1993), to earlier formulations for reconciling Modernism and Classicism such as those of Giuseppe Terragni and Le Corbusier.

Limited financial resources and a labor force brought in from Slovakia with little experience in on-site reinforced-concrete construction made building the memorial structure at Srebrnice Cemetery more difficult than it might have been. But out of these limitations, a "noble poverty" has been realized which has nothing to do with the extravagant wastefulness of much recent architectural production. In a recent interview, Vodopivec gave some idea of the ethos behind his architecture, noting, "Our world is full of superficiality, consumerism, and very few things of value. That is why I marvel at the silence of architecture. It happens when the buildings become one with the space … It is only when architecture loses its temporal dimension that it can come close to art."

Vodopivec understands that architecture should cut across time, communicating with observers of diverse backgrounds over many generations. In an era suffering from a surfeit of virtual images, Srebrnice Cemetery reaffirms a sense of place and insists on the irreplaceable qualities of direct architectural experience. Taking a modest system of construction, Vodopivec endows it with a poetic presence. He pays particular attention to the sense of load and support, and to the proportion between walls, openings, and columns. Through a simple underlying order, the cemetery intensifies the experience of a clearing in the forest. At Srebrnice, a crystalline geometry unites with light, space, and material to heighten the awareness of nature and encourage reflection on the passage from this world to the next. ■



Project: *Srebrnice Cemetery, Novo Mesto, Slovenia*
Design architect: *Ales Vodopivec with Nena Gabrovec*
Executive architect: *Arhitekton*
Engineers: *Anton Berce (structural); Tomaz Jepelj (mechanical); Vasilij Lombar (electrical)*
Landscape consultants: *Dusan Ogrin; Davorin Gazvoda*
General contractor: *VGP Gestno*

Sources
Concrete: *Begrad; Vinz*
Glazing: *Kristal*
Furniture: *Vidmar*

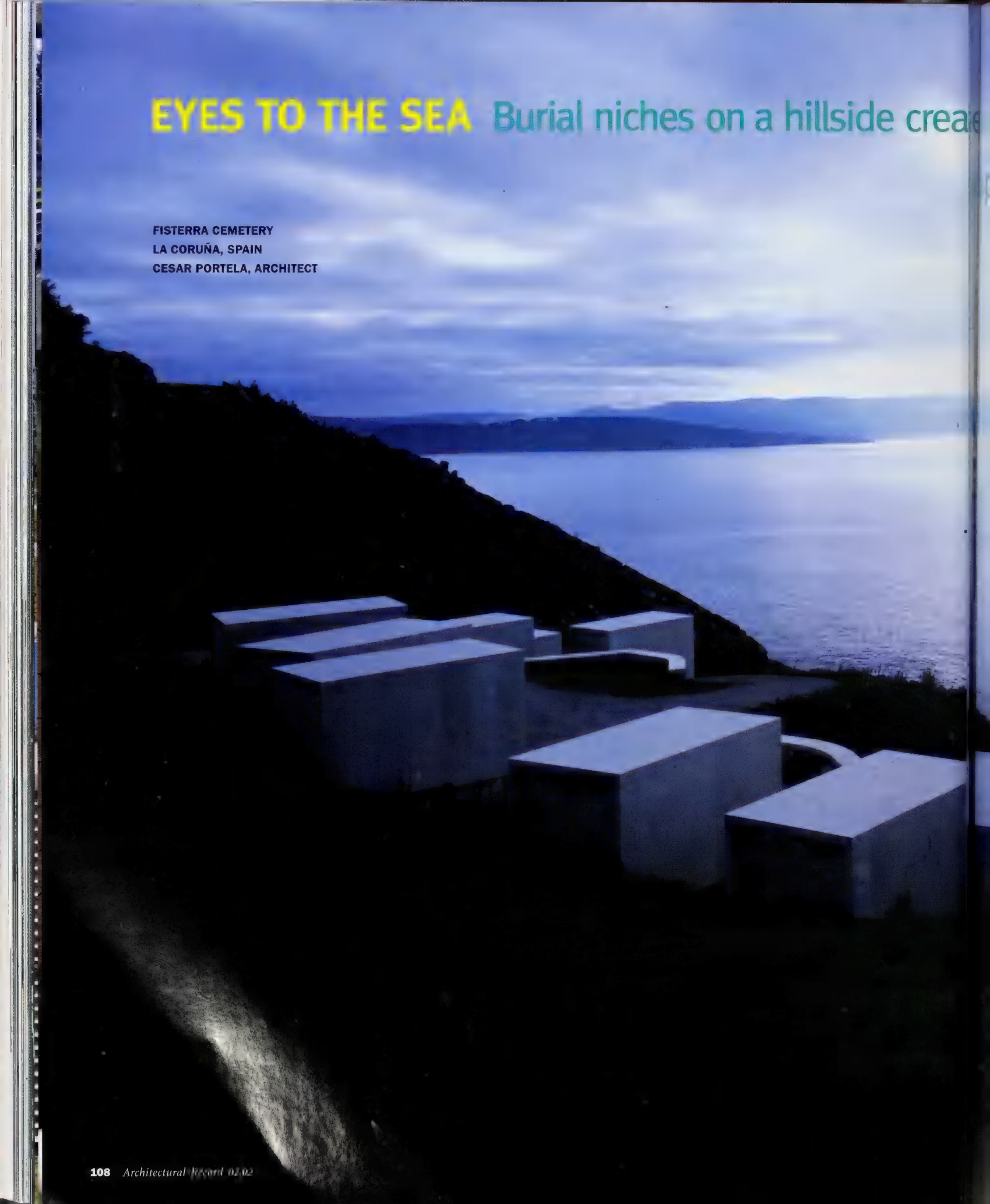
For more information on this project, go to Projects at **architecturalrecord.com**.



Views are framed both inside and out, as seen from the columned portico (this page), as well as the funeral hall (opposite, top), the corridor to the chapels (opposite, bottom left), and the chapels themselves (opposite, bottom right).

EYES TO THE SEA Burial niches on a hillside creat

FISTERRA CEMETERY
LA CORUÑA, SPAIN
CESAR PORTELA, ARCHITECT



poetic landscape above the **COAST OF GALICIA**



The architect envisioned the simple granite forms scattered along the steep hillside almost as Classical temples possessing the landscape. A winding road provides access to all of the burial houses.



While the stone volumes seem at first glance to be randomly placed on the site, the architect located and angled them so that one does not look directly onto another. Each structure contains 12 burial niches and a bench for mourners.



By David Cohn

They call it Fisterra, "the end of the world." Located in the Spanish province of Galicia, on a peninsula that juts into the Atlantic at the most extreme western point on the European continent, the place remained on the far edge of the map until Columbus set sail for America. Even today, the people who live in the small fishing village here refer to the area as the Coast of Death for its treacherous currents, violent storms, and frequent shipwrecks. In such a place, a cemetery serves a unique and powerful role in the lives of the people.

Following the tradition of Galician fishing towns, Fisterra built its new cemetery with views of the ocean. "The boats pass it every day when they leave the port," explains César Portela, the architect for the project. "In the afternoons, the cemetery is full of widows, widowers, parents, children. They care for the graves, talk, and look out over the sea. There is a constant dialogue between the living and the dead here."

Portela, 65, is a native of Galicia and well known in Spain as a regional architect who takes inspiration in the vernacular culture, local materials, and dramatic landscapes of the area. The Fisterra Cemetery marks a departure from his more historicist vernacular designs of the 1980s and '90s, such as the nearby lighthouse at the head of the peninsula. With the cemetery, he has begun an exploration of more abstract and gestural forms that will continue in upcoming works such as congress centers in Vigo and La Coruña.

Portela designed the cemetery as a series of granite volumes scattered along the steep coast about a mile outside of town. Each volume contains 12 burial niches set within a deep opening or porch and is composed of solid slabs of local granite nearly 8 inches thick. The porches have granite benches and offer protection from the wind and frequent rain. On the slope above the main group of niches, three volumes identical in form to the others but enclosed in Cor-ten steel, contain a chapel, a morgue, and a forensic laboratory.

Portela describes the openings in the volumes as "eyes" that look out to sea but also as "dark depths" that emerge from the mountainside. The apparently casual distribution of the volumes follows the topography, as if they were boulders that had rolled down the mountain or freight containers from a shipwreck that the waves have thrown onto the shore." But Portela calculated their arrangement so each porch is shielded from views of the others, and visitors can be alone before the landscape.

When discussing the cemetery, Portela speaks with the emotion and assurance of a poet or storyteller, one who is not averse to a bit of romantic exaggeration: "I had the idea in the beginning that the cemetery would be a spectacle reserved almost exclusively for the dead and the gods. Situated in this magic place, these stone houses, dispersed across the slope like small cubic temples, take possession of the landscape. Like the Greek temples at Delphi, they listen to the infinite echo of the horizon. And at their feet, the waves play indifferently." The work of the fishermen of Galicia is hard and dangerous, and it is tempting to see their close relation to death in romantic terms. But despite his florid rhetoric, Portela's architectural vision serves his clients well. In the Fisterra Cemetery, he has created a particularly moving place for mourning that, in his own words, "reaffirms architecture as a sacred space in our relation with the world." ■

Project: *Fisterra Cemetery, A Coruña, Spain*
Architect: *César Portela—César Portela, Juan Mosquera, Fabian Estevez, Serafín Lorenza, design team*
General contractor: *Construcciones Ponciano Nieto Gonzalez*

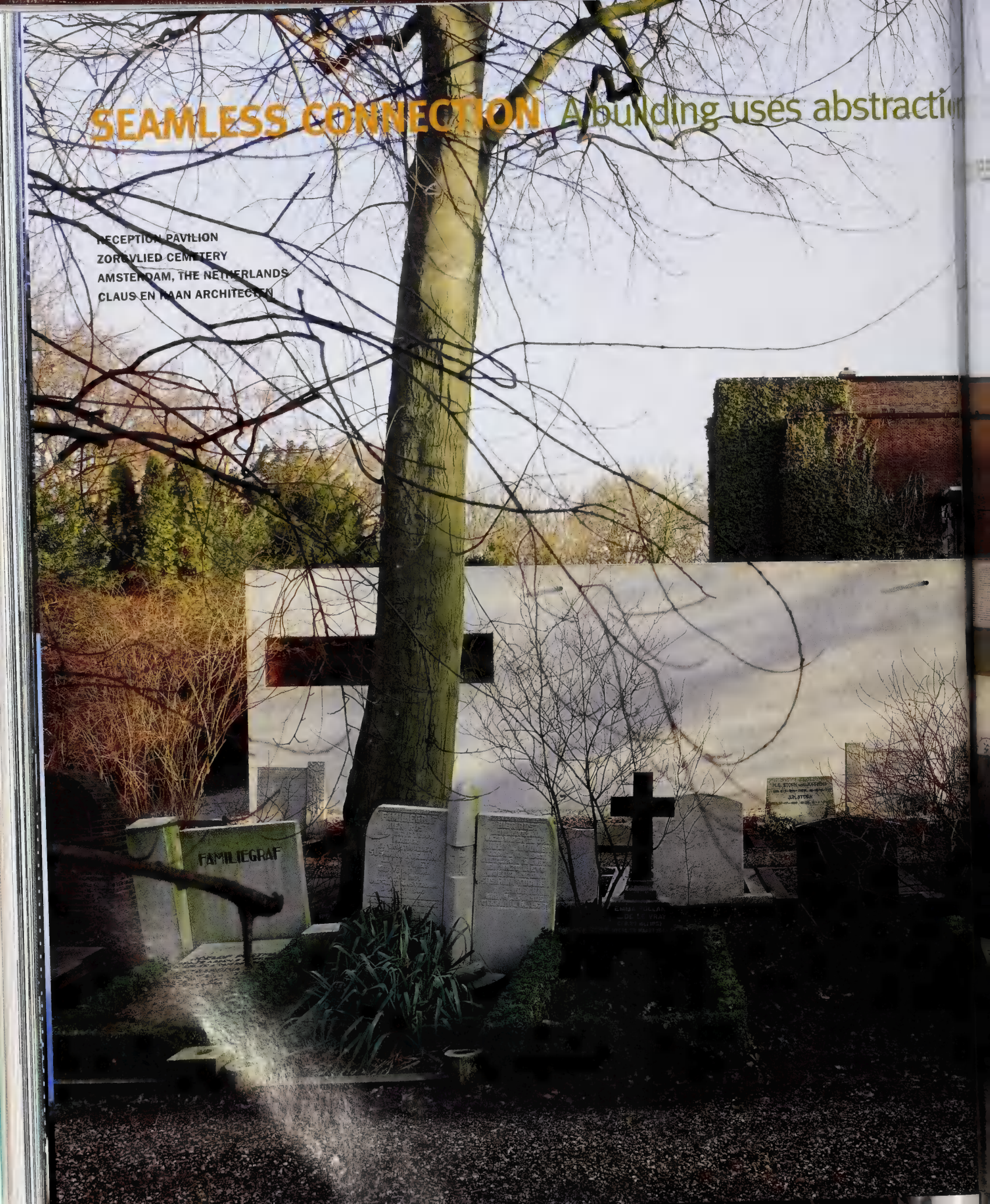
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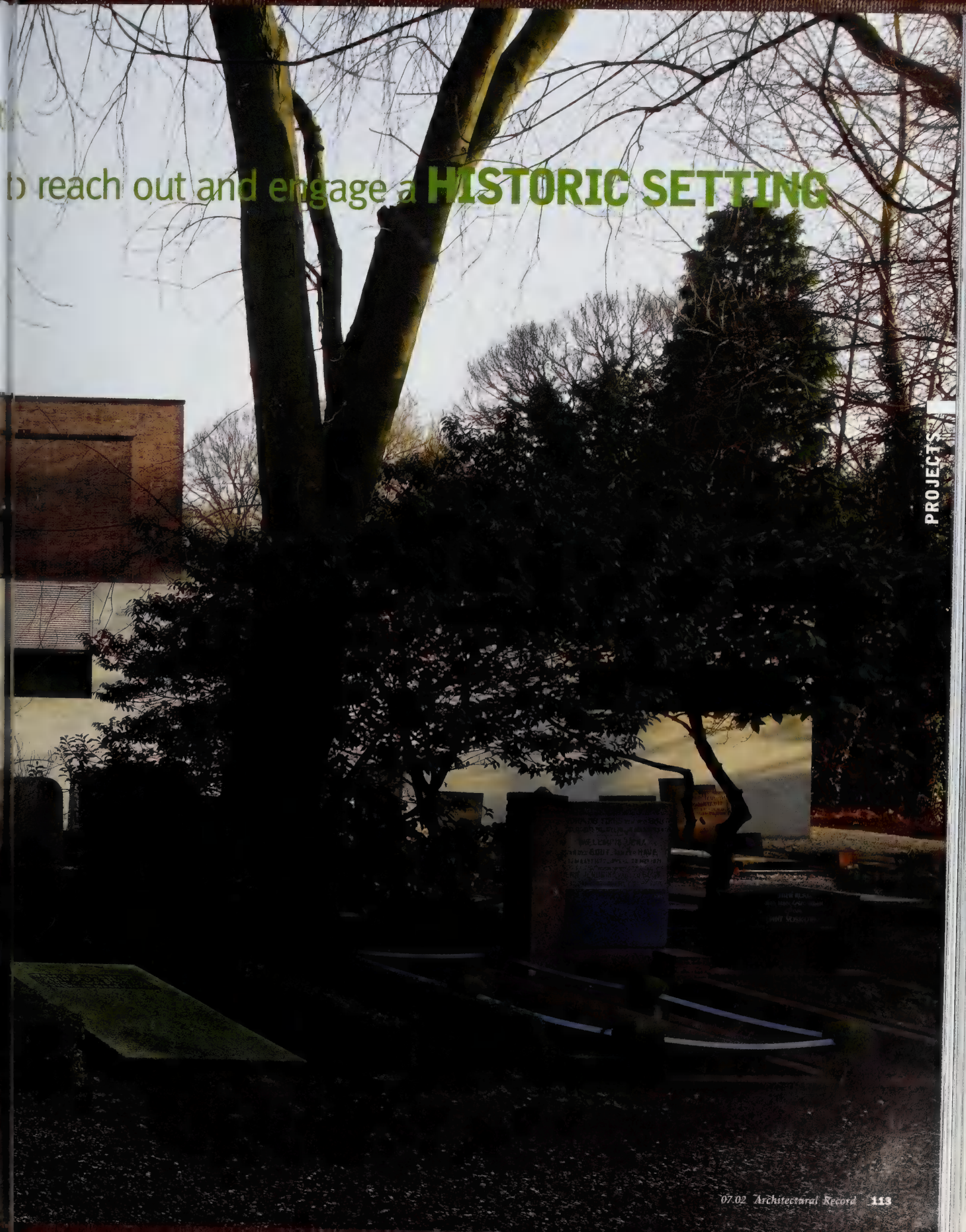


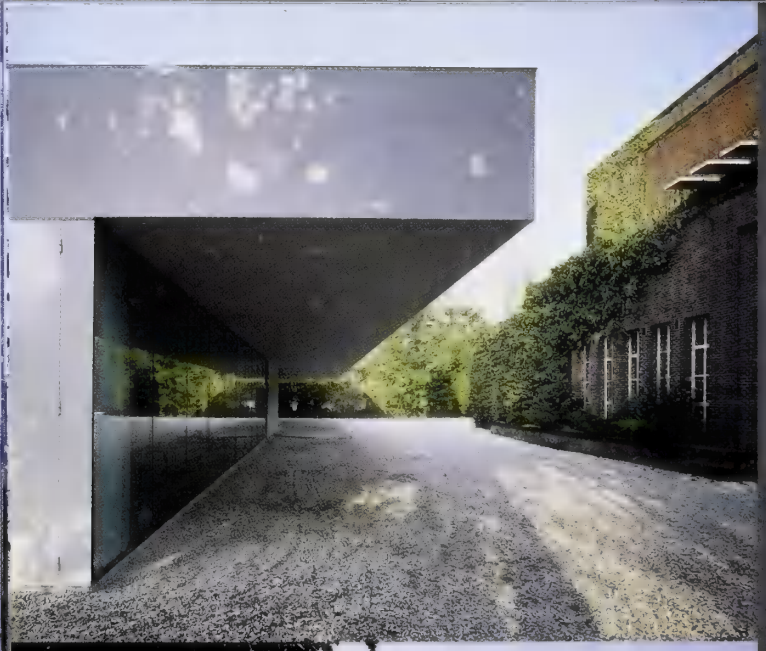


SEAMLESS CONNECTION A building uses abstracti

RECEPTION PAVILION
ZORGVLIED CEMETERY
AMSTERDAM, THE NETHERLANDS
CLAUS EN KAAN ARCHITECTEN




to reach out and engage a HISTORIC SETTING







By Clifford A. Pearson

An unseen force seems to draw the two buildings together, creating a space between them that is charged with feeling. Like opposites that attract, a new reception pavilion and its older, larger neighbor at Zorgvlied Cemetery in Amsterdam demonstrate that good architectural relationships aren't necessarily based on both partners saying the same thing. In fact, architect Felix Claus shows how powerful design can be when it complements, rather than imitates, what came before.

Set in a municipal cemetery, the new building serves as a venue for receptions held after burials. Previously, such receptions at Zorgvlied took place in the 1930s-era, redbrick funeral hall next door to the addition. But holding receptions in the same place as funerals limited the number of burials that could be performed, because space in the funeral hall had to remain empty while mourners walked to the grave site and then returned. The new 3,000-square-foot building now provides space for two post-burial gatherings, along with a kitchen, a coatroom, and toilet facilities.

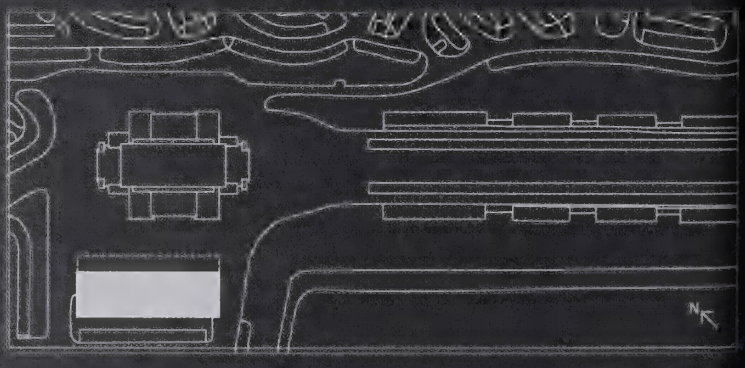
The architects envisioned the building as a "sharply cut object set against the finely detailed mass of the funeral hall," explains Claus. While establishing "a level of abstraction" that sets it apart, the flat-roofed, steel-framed pavilion extends a handlike gesture to its neighbor. The idea was to create "a continuous room," stretching from inside the reception building out to the funeral hall. To do this, the architects placed the new building flush with the ground and projected the roof far beyond the glass wall facing the old building. A "carpet" of white gravel runs between the two structures, emphasizing the roomlike quality of the space. "You can *feel* the space between the buildings," says Claus.

Working with a budget of just $250,000, the architects used simple materials, such as concrete for floors, plaster on walls, and paneling made of wood salvaged from the building's concrete formwork. They kept the building's exterior plaster unpainted so it would weather and change color. "It's already picking up some green and aging," reports Claus. Inside the pavilion, he painted walls around the service core cadmium yellow, his favorite color, to provide an "optimistic" accent. The biggest impact, though, comes from the floor-to-ceiling glass running almost uninterrupted on the building's north facade, creating a sense of seamlessness between inside and out, structure and landscape, then and now. ■

Project: *Reception Pavilion, Zorgvlied Cemetery, Amsterdam, the Netherlands*
Architect: *Claus en Kaan Architecten—Felix Claus, Marc van Broekhuijsen, design team*
General contractor: *UBA Bouw*

Sources
Curtain wall: *Barnsveld*
Concrete: *Natuurbeton*

WWW *For more information on this project, go to Projects at* ***architecturalrecord.com.***





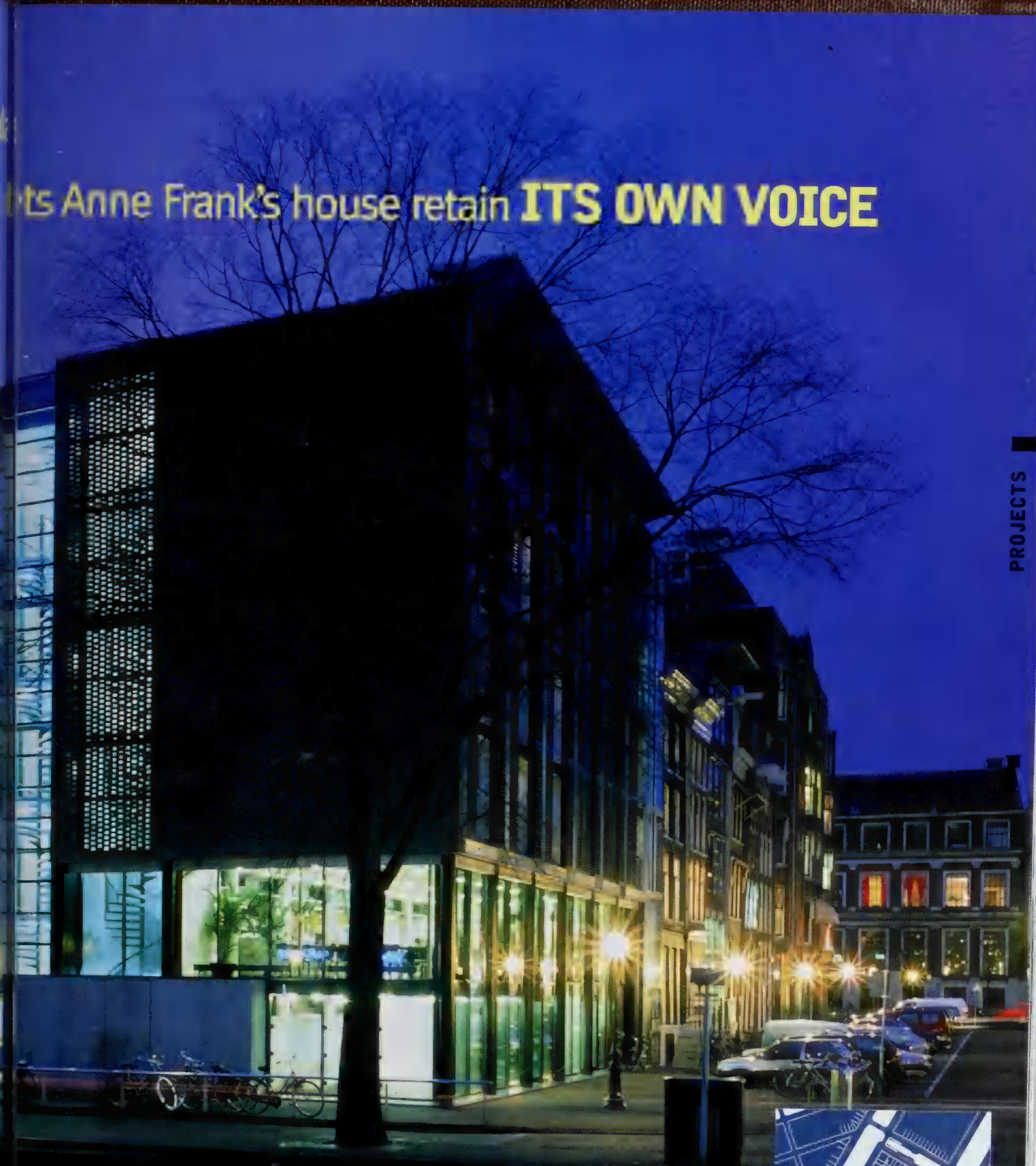
The plaster-faced reception building engages in a dialogue with the ivy-covered funeral hall that changes tone with the seasons (this page and opposite, top and center). Inside the building, color provides a welcome accent (opposite, bottom).

ADDENDUM TO HISTORY A new design vocabula

ANNE FRANK HOUSE EXPANSION
AMSTERDAM, THE NETHERLANDS
BENTHEM CROUWEL ARCHITEKTEN



Its Anne Frank's house retain ITS OWN VOICE



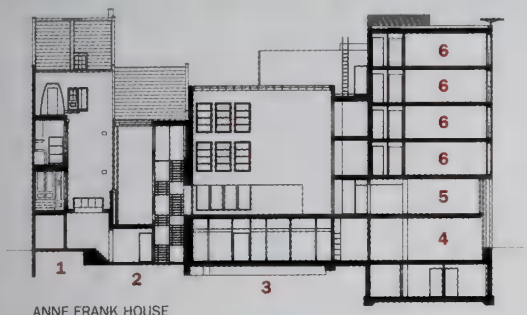


The addition occupies the corner of the block and provides space for a café and bookshop. The Frank House and an adjacent town house to its left (opposite) are part of the complex.



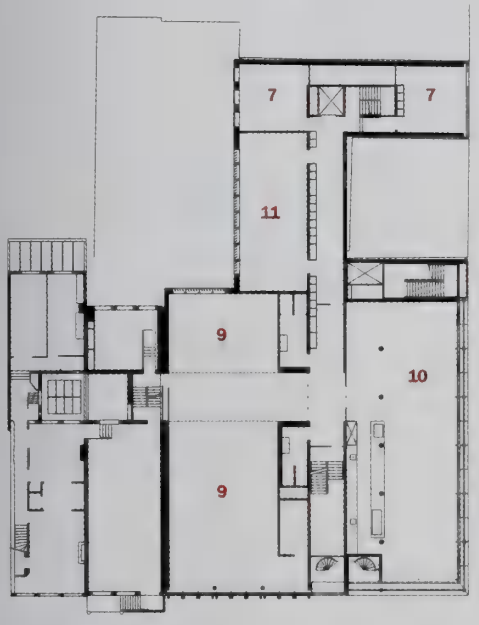
Visitors line up on the canal side of the museum to enter (above). A skylit court brings daylight inside (right). Around the corner, new apartments replace an old dorm (below).





ANNE FRANK HOUSE

1. *Anne Frank House*
2. *Prinsengracht 265*
3. *Museum*
4. *Bookshop*
5. *Café*
6. *Housing*



UPPER LEVEL

useum entry
useum lobby
okshop
rage
entation
using entry
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ice entry
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lia



ENTRY LEVEL

PHOTOGRAPHY: © JANNES LINDERS

By Tracy Metz

The tall, thin house on the canal in Amsterdam where Anne Frank wrote her diary has the glow of authenticity, and every year hundreds of thousands of people come here to experience history-on-the-spot. Under the weight of this empathy, however, the building was coming apart. So the Anne Frank Foundation commissioned a team—the Amsterdam architects Benthem Crouwel, restoration architect Cor Bouwstra, professor of historical restoration Coen Temminck Groll from the Technical University of Delft, and interior designer Marijke van der Wijst—to enlarge and modernize the house without jeopardizing its emotional and physical legacy.

To find room for the expansion in Amsterdam's densely populated historic center, the team razed a university dormitory behind the house, creating space for facilities that had been sorely needed: a separate bookshop, a café, an auditorium, a lobby on the ground floor with orientation displays, and office space. Where the dorm used to be, facing a church on a side street, the architects designed four floors of university apartments above the new museum bookshop and café. With its combination of old and new, the Anne Frank complex now has separate but linked circulation routes—one for the public and one for staff—as well as space for visitors to wait before gaining access to the historic house.

The expansion allows more of the original house to be on view than ever before. For example, the office where Anne's father Otto Frank and the family's indispensable helper Miep Gies worked has been meticulously reconstructed, as has the storage room with its brick floor. Upstairs, black netting and closed windows recreate the look of a wartime blackout. The architects hid new necessities such as a fire-alarm system out of sight and tucked a ventilation system in a closet.

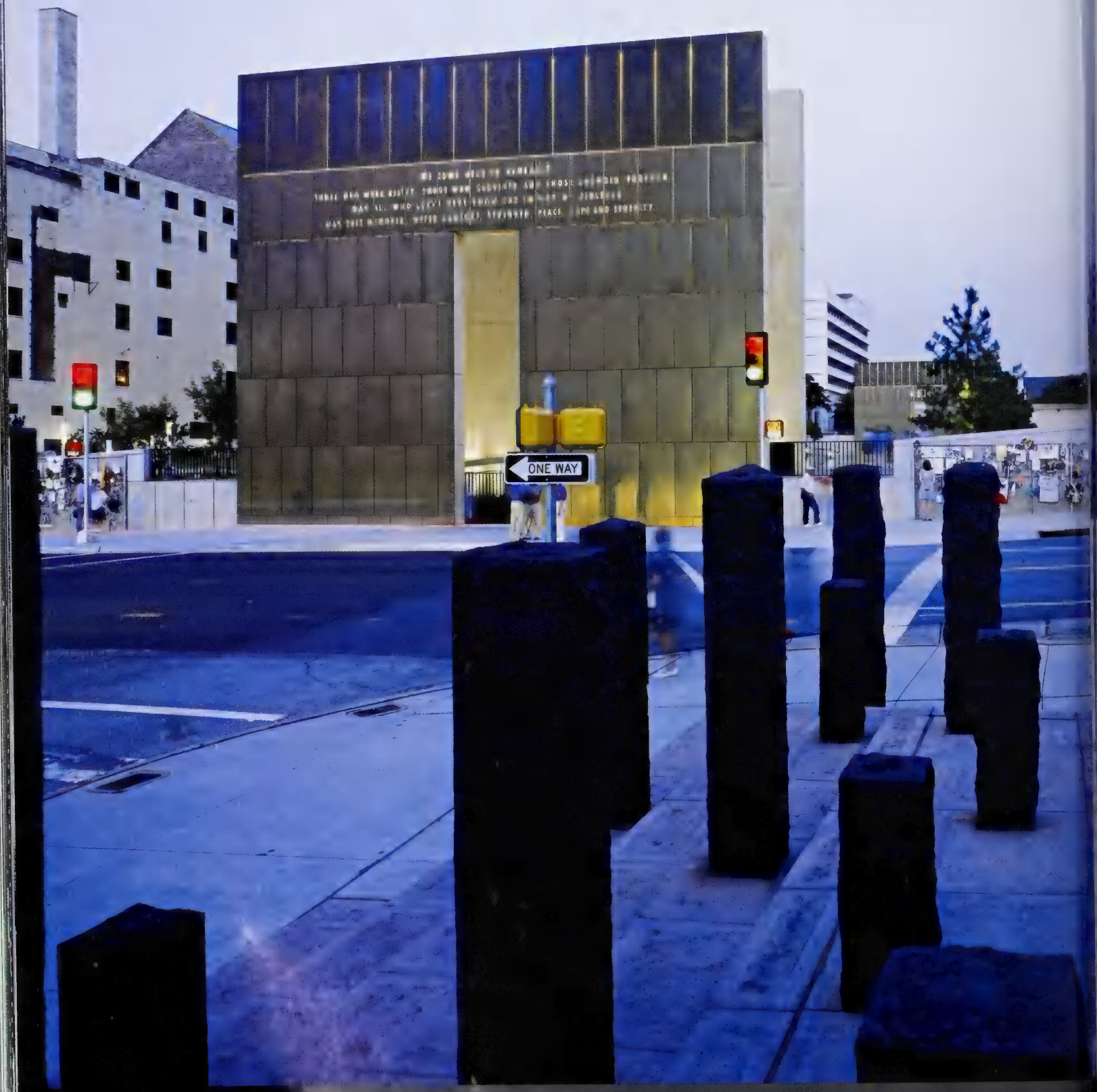
The architects did not smooth over distinctions between old and new, and, in fact, accented them by specifying contemporary materials such as glass and stainless steel for important points of transition like doorways, passages, and landings. This shift in materials helps orient visitors as they wind their way from the front of the house on the canal, past the famous bookcase hiding the entrance to the annex, through the family's tight living quarters, and back to the front and down again. Glass and steel interventions make a statement about the design team's approach to history and to the story being told. History is not styled or dramatized here; it is merely shown. This simple and direct approach—supplemented, as needed, by unabashedly modern graphics, signage, and displays—gives the house much of its impact and helps provide the background information that most visitors nowadays need to understand the Frank family's story.

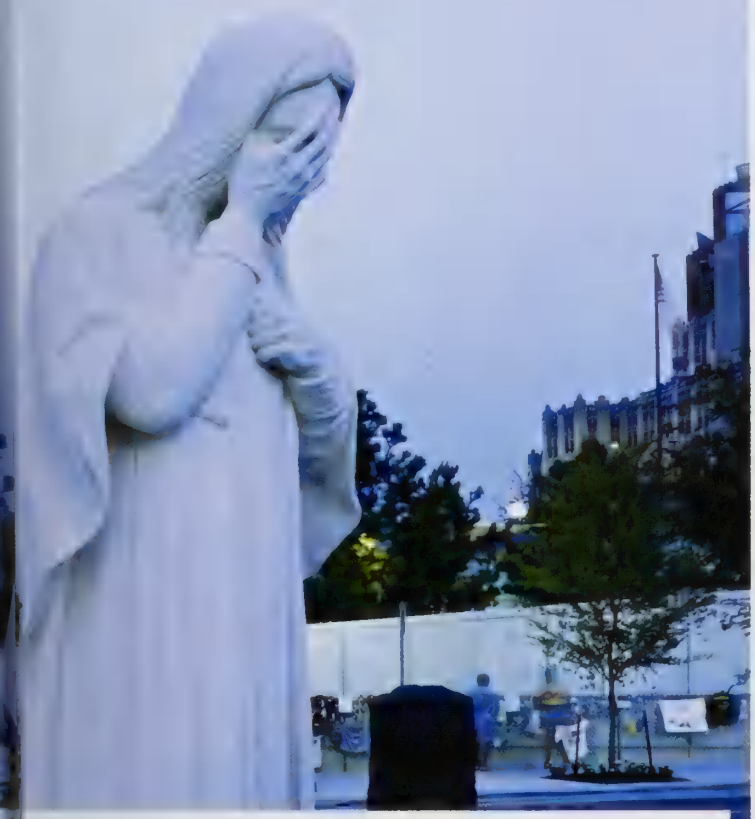
The architects at Benthem Crouwel risked being accused of commercialism by putting the café in the building's prime spot, on the second level overlooking the canal. But such criticism would be unjust: The café opens the house to the street in a whole new way and, more important, gives visitors a place to reflect on what they have seen before venturing back to the contemporary world. By being honest about what's new, the Anne Frank House honors the memory of what's old.

Project: *Anne Frank House Expansion, Amsterdam*
Architect: *Benthem Crouwel Architekten—Mels Crouwel, Marcel Blom, Ton Liemburg, Joost Vos, Erwin de Bruin, Nico de Waard, Ray van Eijk, project team;* *Marijke van der Wijst*
Consultants: *ABT (construction); Deerns Raadgevende Ingenieurs (installations)*
Interior design (old building):

For more information on this project, go to Projects at **architecturalrecord.com**

WHO owns grief





rd T. Linenthal, a professor of religion and American culture at the ersity of Wisconsin, in Oshkosh, has long studied how America comes to with tragic events. In books such as Preserving Memory: The gle to Create America's Holocaust Museum *(Viking, 1995), and, recently,* The Unfinished Bombing: Oklahoma City in American ory *(Oxford, 2001), he has also studied the role of architecture and commemorating these tragic events. Linenthal recently spoke with* RD*'s editor at large James S. Russell, AIA.*

ITECTURAL RECORD: *What do the responses to the Oklahoma City ing and the terror attacks of September 11 tell us about how we remem- d how we commemorate?*

ARD T. LINENTHAL: The responses were similar in many ways. One of milarities was the sense that design can almost resolve these horrors , can lead us through the horrific mysteries of such an event.

The Oklahoma City experience is not a template, but there are les- o be learned from the development of an inclusive process. There's an able hierarchy of memorializing that must be sorted out—an appro- means of locating the voices of family members, rescuers, and so on. may not come up with the same answers in New York, in ngton, or in Pennsylvania, but Oklahoma City helps us be mindful of n American city responded to a horrendous act of mass disaster.

t does not the most recent tragedy present us with a much broader and more complex range of issues, especially in Lower Manhattan? After all, the attacks not only destroyed so many peoples' lives, they targeted the towers as a symbol of America's importance in world finance and crippled the nation's third-largest downtown.

ETL: I think that makes a process like the one in Oklahoma City even more important. What are the agendas? How do you include a variety of voices? You need to be mindful of the hierarchies that exist, to find a way to consider the differences in feeling, in sacrifice, and in grief experienced by survivors or rescuers compared to people who lost, say, business colleagues. I understand that there are a number of different groups with different agendas representing different bereaved communities. You can't act on every group's agendas, but you can understand the web of grief and conviction and concern.

"AFTER OKLAHOMA CITY . . . NO ONE SHOULD BE SURPRISED THAT PEOPLE OBJECT TO RUBBLE BEING MADE INTO TOMATO-SOUP CANS."

After Oklahoma City, no one should be surprised that these kinds of events bring people together and tear them apart. No one should be surprised that firemen didn't want to leave the site when Mayor Giuliani tried to pull them off. No one should be surprised about concerns that someone got more relief money than someone else. No one should be surprised that some people object to rubble being transformed into tomato-soup cans. Or that the site is regarded as ground too sacred to be built upon.

In Oklahoma City, family members were concerned that an influential person's personal taste would triumph over community conviction or that the process would be hijacked by the powers that be. In New York, many of the bereaved feel similarly, and this must be addressed. Will we see family members chain themselves to bulldozers when they start construction on the site of 7 World Trade Center?

AR: *You found much to admire in the way Oklahoma City faced the aftermath of the bombing.*

ETL: In the Oklahoma City Memorial process, I found the democratic arts to have been practiced in a majestic kind of way. They didn't start with design, they began by developing a mission statement. Writing that mission statement and developing the criteria for the memorial competition incorporated grieving and mourning as part of the work. It gently moved people over time from the sense of individual ownership of a commemo-

Linenthal admires the process created to design the Oklahoma City Memorial, which commemorates the 1993 bombing of a federal building.

rative idea—that this eternal flame or this cross or this heart is all that can represent my loved one—to a wider vision of what the disaster meant. The memorial expression of that was magnificent. People gained a public voice in the process and felt enfranchised.

AR: *Paul Spreiregen, the first competition adviser, was quite firm in his conviction that the jury judging the memorial-design entries comprise solely professionals and not include family members and other survivors. Did the process prove him wrong?*

ETL: That seemed a moment of truth. The family members had been involved all the way and there was a strong sense that they had to continue to be involved. Design professionals did work with survivors, and they worked together beautifully. Family members didn't try to be designers, but they were able to bring an immediacy to the discussion. It became a great interaction—and I think the memorial is an eloquent statement. With the right process and the right people, there is no reason that family members have to be seen as being too close to make judicious and aesthetically enlightened choices.

AR: *How did the designers selected in Oklahoma City [Hans and Torrey Butzer, with Sven Berg] work with the community?*

ETL: I suspect that the designers found this to be an incredibly important and moving experience. They didn't just do the design and leave. They moved to Oklahoma City and were critical in working through issues with families and survivors. They were sensible and flexible. They were willing to add to their design more of the commemorative fence that was around the site, for example. For many of the families, this was the memorial.

"BEREAVEMENT TRUMPS ALL THE WAYS WE'RE SEPARATE, AS IF TRAGEDY OPENS A WINDOW TO AN IDEAL COMMUNITY."

Where they and others did firmly say no was to the conviction by some family members that the site was a cemetery and not for memorialization because unrecoverable remains were buried there.

AR: *Can greatness possibly result when so many people are involved?*

ETL: Architects can in effect go off and do their own thing, but the process of selection was done wisely in Oklahoma City, with a plurality of family members. The jury decision on the Oklahoma competition was blind and unanimous, so family members were not going off in one direction while the professionals went in another.

As processes are democratized, though, they become compellingly honest but also problematic. You are dealing with volatile memories and volatile issues, ones that test the durability of the process and the talents of the people involved. If not mindfully and carefully done, such a method could very well not succeed.

AR: *Would you advocate the creation of a mission statement involving all t communities and groups that have a stake in what happened in Low Manhattan?*

ETL: It doesn't seem to make sense to ghettoize memorialization, so wha ever is done and however it is done should fit into a philosophy about t place. What to remember, how to remember, and how it fits into a who

AR: *After September 11, people brought flowers, banners, candles, and so on firehouses and police stations all over New York City. The same thing happen*

"FOR ME, THE MOST PROFOUND AND MINDFUL MEMORIAL WOULD ENGAGE THE STRUGGLE OF COMIN TO TERMS WITH THE EVENT."

in Washington, D.C., and in Pennsylvania. You saw a similar process take pla in Oklahoma City. Are these also memorials, ones that are taking new for

ETL: Even from afar, these offerings seemed very human. It is an example a kind of democratizing of memorialization. It began when the Vietna Veterans Memorial was so eloquently transformed by the touching thin people left behind. In Oklahoma City, a fence was erected, initially to pr tect a crime scene, later to protect the footprint of the bomb damage. Th fence became a site for memorial creation. Within days, people bega sending toys, poems, drawings, letters, flowers, banners, and quilts. It's way people have of entering into the event, of registering emotion.

AR: *How would you explain this phenomenon?*

ETL: Media enfranchises us to be part of bereavement communities, an that is such a powerful and unifying feeling. People get a sense of what acceptable and doable. They see prayer cards and teddy bears and so the bring or send those things. It's not new; there's a long history of peop leaving things at tragic sites—in African-American history, for example. has become an accessible, popular way to register emotion and enter th event and imagine oneself as part of a larger bereaved community.

AR: *Does this plethora of imagery, much of it clichéd or naive, suggest tha Americans don't know how to express themselves as a community?*

ETL: There is a spiritual allure to being part of an event, because of th horror, because some people need to connect to people who went throug tragedy. A whole range of emotions are involved, from the most heartfe to the most voyeuristic.

We're united in an almost effervescent feeling and exhilaratio Now something horrible has brought us together. Bereavement may be th only way Americans imagine themselves as one. It trumps all the way we're separate, as if tragedy opens a window to an ideal community so fa from the day-to-day reality. And it may be true in a fleeting kind of wa The harsh reality is that it doesn't last.

AR: *Does this trend suggest that people no longer trust designers to powerfull represent the meaning of such tragedies?*

ETL: I would put it more positively. As social history has restored th importance of ordinary peoples' voices, we pay more attention to sur vivors and to the testimony of witnesses. It's not a distrust of artists o architects. But hiring someone to create a memorial is inadequate by itsel

At the Oklahoma City Memorial, people dip their hand in th



The poems, photos, and origami birds that hang from the fence at Manhattan's St. Paul's Church have become standard forms of democratized remembrance.

pool and then place it on the gateway, which leaves a handprint on the metal. The designers did not intend this—people just figured it out. They are physically connecting. We often underestimate the power the material world has on us.

AR: *Does our era demand a new kind of expression entirely? Is the monumental commemoration obsolete?*

ETL: No, it can still be eloquent. The discomfort is not just with monumental form, or even singular form. We have seen a trend to what I call activist memorial environments, like the U.S. Holocaust Memorial Museum. It's a museum as well as a commemorative place, and it reaches out. Oklahoma City also includes a museum. Places like this respond to the sense that memorials need to do more than just be placid places to go and remember. They need to have a role in the community. People want these memorials and museums to be rich, transforming civic spaces, where we remember and immerse ourselves in expertly fashioned environments and emerge born-again citizens and act on what we have learned. Maybe memorials are becoming more than just temples because of the poverty of our public life. I wonder about this, but hesitate to suggest it is the case.

AR: *What can memorials do for the bereaved?*

ETL: People can hope for too much. If people expect a memorial to resolve the grief and emotions that they feel, I think they are in for a tremendous disappointment. For me, the most profound and mindful memorial would engage the struggle of coming to terms with the event. It's not about resolving it or coming to "closure." It's about enduring.

AR: *What makes memorials last over generations?*

ETL: Jay Winter, who has written very good stuff about World War II memorials, talks about how some suffer a "trajectory of decomposition." Not all hold their meaning. In some ways, it seems that the erection of a memorial is an implicit admission that the overpoweringly important meaning of a shattering event—one that is at the heart of one generation's life—is not at the heart of another's. The Civil War generation would be stunned if it saw the disrepair and invisibility of so many of its memorials. It's hard for me to imagine the World Trade Center tragedy as forgotten, but in my darker moments I do see that happening, just as I see the September 11 events as transcending the tragedy in Oklahoma. In my worst nightmares, something comes down the road that diminishes the World Trade Center disaster. ■

ARCHITECTS without architecture at Ground Zero



A Commentary by Suzanne Stephens

The now-cleared 16-acre site of the World Trade Center (WTC), "in the valley of the shadow of business," to use Lincoln Steffans's phrase of 1897, awaits a master plan. Sponsored by the Port Authority of New York and New Jersey, owners of the land, and the Lower Manhattan Development Corporation (LMDC), the plan is due at the end of the year. For the time being, architects—but not architecture—are in the forefront of this staggeringly complex planning process. Yet the role of architecture in the future development on the site, and the nature of the memorial for the victims of the September 11 World Trade Center attack, remain unsettlingly elusive. To be sure, at this stage, pragmatic decisions on infrastructure, transportation, and land use must be made. Nevertheless, those with power (state and real estate) are delivering information that's incomplete and inconsistent. If this process were a building, you would say what's visible is clouded in smoke and mirrors and what's really going on is submerged below ground. Right now, our worst fear is that the two components, architecture in general and the memorial in particular, will be overwhelmed by the mediocrity of the development.

Hold the architecture The selection of Beyer Blinder Belle (BBB) along with the engineering firm of Parsons Brinkerhoff by the Port Authority and LMDC (page 23) got much of the architectural community in a stew. In *The New York Times*, Herbert Muschamp blasted BBB's architectural track record for its lack of design innovation. While acknowledging that much of the firm's task is limited to planning, not architecture, Muschamp announced that the choice "confirms once again that architecture will play no more than a marginal role in the redevelopment of Lower Manhattan."

Although Beyer Blinder Belle had reached civic sainthood with its restorations of Grand Central Terminal and Ellis Island, Muschamp has a point. The firm is not as acclaimed for its architecture de novo as its renovation work, nor is its urban design reputation as high profile as some of the other firms around. At the same time, one cannot help feeling that Muschamp was aiming a machine gun at a barrel of goldfish. No doubt, a significant factor in the choice at this early phase was BBB's engineers, Parsons Brinkerhoff, which has been involved with transportation infrastructure in Battery Park City. Muschamp's attack helped further splinter the architectural community internally: Instead of the enemy being government bureaucrats or developers, it's non-avant-garde architects. Peter Samton, FAIA, a member of the one of the six short-listed teams of architects, engineers, planning, landscape, retail, and real estate consultants, expressed the opinion of the pragmatically minded when he wrote to *The New York Times* (not published): "Would a currently fashionable European star architect understand the intricacies of the multiple transportation layers required to bring normal life back to the World Trade Center site? ... At this point in time, downtown needs an internist ... not a dermatologist ..."

Samton's got a point. But it can be said that Muschamp's trigger-happy jitters, if premature, come from the fact that innovative architecture (especially in New York) usually gets short shrift. Most of the architects on the six teams that vied for the master-plan selection are part of the establishment. They have solid urban design experience, but their varied architectural reputations promise home cooking, not haute cuisine. Besides BBB, one team was composed of Kohn Pedersen Fox (with engineers Arup and architect Fred Schwartz, AIA, among others); another had Hardy Holzman Pfeiffer, Fox and Fowle, Gruzen Samton (with engineers STV and DMJM + Harris); another, Ehrenkranz, Ekstut and Kuhn (with engineers URS); a fifth, Robert A.M. Stern Architects (with Earthech/TAMS engineers); and finally, Rem Koolhaas, Davis Brody Bond (with engineers Arup).

Arrogance and the avant-garde Koolhaas is arguably the only avant-garde architect on the list. Behind-the-scenes scuttlebutt has it that Koolhaas and his team didn't win because he is not considered the type that could build a consensus among the public. As we know, the image or personality of an architect can often attract particular clients, and in a situation with a large, vocal audience, the nice-guy demeanor can carry the day. John Belle, FAIA, and Jack Beyer, FAIA, both have an affable style that makes Santa Claus seem snarky. Koolhaas, on the other hand, is widely considered to be arrogant with a capital A. You pay the price for public life. "This is a process requiring patience," explains one architect who interviewed for the job. "You're going to deal with community groups and agencies. You need an architect who knows how to put up with all this stuff." The persona counts for more when you're fronting for a faceless Port Authority and LMDC.

HIGHLY VISIBLE, BUT NOT TRANSPARENT, PLANNING FOR THE WTC SITE RAISES ISSUES ABOUT ARCHITECTURE AND REMEMBRANCE.

Many of the competing architects seem to think that the process for selecting the master-planning team was fair (a feeling not necessarily shared by the young and small firms left out by the Request for Proposal's experience requirement), even if preparation time for the six short-listed teams was but a few days between notification and presentation. The hour-long presentations and questioning reportedly involved three people on the LMDC, including Alexander Garvin, vice

With little information to go on, it's hard to take the long view about planning for the World Trade Center site.

president for architecture, planning, and design, and three from the Port Authority, including its chief architect, Robert Davidson, FAIA. In addition, there were about 20 observers. Notably missing in action was Billie Tsien, AIA, of Tod Williams Billie Tsien and Associates, who is the lone outside architect to sit on LMDC's board and a widely acknowledged representative of "high design." Moreover, although Tsien asked some leading questions at the early open board meetings of the LMDC (see www.archrecord.com, May 15, 2002), more recently she has been awfully quiet. Has she been silenced? Some of us suspect she is being treated as a token: Show up, but shut up.

In terms of the selection, some groused that BBB had not taken much part in the voluntary efforts of the coalition of professional and civic groups (including the New York AIA), which prepared analytical reports for public enlightenment, enabling architects to become familiar with the issues. Alas, good deeds are often their own reward—with no guarantee of getting the job. A few architects, however, report that BBB was already in there: It was the lead urban designer in a little-known, task-force study of West Street (the 10-lane highway that splits the site from Battery Park City), which was commissioned by Battery Park City Authority during the winter.

THE TWO POWERS SHAPING THE SITE ARE THE STATE AND REAL ESTATE. ARCHITECTS DON'T HAVE POWER—ONLY INFLUENCE.

Power of the state All this flap over the choice of BBB to develop the LMDC/Port Authority plan is based on the assumption that architects have power. Yet they really only have influence. As Paul Goldberger spelled out very clearly in his essay "Groundwork" in the May 20 issue of *The New Yorker*, Governor George Pataki controls the Empire State Development Corporation, which is allowed to override local zoning laws, and of which the Lower Manhattan Development Corporation is a newly state-formed subsidiary. The state also oversees the Metropolitan Transportation Authority, the Battery Park City Authority, and, in conjunction with New Jersey, the Port Authority. So where is the city? As Goldberger put it, "The city, astonishingly, has no official role in the planning process, although Daniel Doctoroff, Bloomberg's deputy mayor in charge of economic development, has a function as a kind of city ambassador to the planning effort...." Even though mayoral appointees compose half of LMDC's board, with the other half appointed by Pataki, the president, Louis Tomson, was put there by the governor, as was Joseph Seymour, the executive director of the Port Authority. (New Jersey, the other sibling state behind the Port Authority, has some clout: It seems Governor Jim McGreavey can veto the master plan.) The only thing that could change the power alignment overnight is for Pataki to lose the gubernatorial election coming up November. But at this point, you can't find many who will place the money on that happening.

Another question about power has to do with the purse string specifically who exactly has the power to disperse the $21 billion expect to be appropriated from Congress? LMDC now has over $2.7 billion dispense, but what about the rest? When LMDC's Garvin was asked abo the control over the whole pot at a conference held by the New York C AIA on June 11, he noticeably skirted the question. This is not what y call communicating with the public. The answer, offered by those famili with the negotiations, is again Pataki, who is expected to get the mon and funnel it through the Empire State Development Corporation.

Because LMDC was created only a few months ago, it has no i house planning staff. Hence, Garvin contracted architects Peterson a Littenberg to provide such services [ARCHITECTURAL RECORD, June, pa 26]. The firm, which is influenced by the collage-city urbanist theories critic Colin Rowe (not Leon Krier, as claimed in the *Times*), prepared urban design study of all Lower Manhattan for Battery Park C Authority and the Port Authority in 1995. While Peterson and Littenbe are also working on proposals for the WTC site—apart from BBB's— they haven't been able to discuss the plan with the press as yet. So t behind-closed-doors efforts add to the mystery.

Power of economics Meanwhile, the Port Authority (PA), as landown needs to make money from its leases in order to pay off its bonds. As is w known, the PA leased 10 million square feet of the World Trade Center—n including the parcel for the 24-story Marriott Hotel (formerly Vi International) still leased by Marriott—to Larry Silverstein for commerc office space before the twin towers were attacked. Westfield America, own by the Australian real estate developer Frank Lowy, took out a lease f 450,000 square feet of retail space and reportedly has an option to expand 600,000 square feet.

Westfield, king of the suburban megamall, is, according to *T Wall Street Journal*, antipathetic to the idea being bruited about for rest ing the city grid of streets that existed before the World Trade Cen superblock was created. Ironically, Westfield may find unlikely suppo from several of the city's more avant-garde architects, such as Micha Sorkin, who claim a grid smacks of retro "new urbanism." But be care what you wish for: Westfield's megamall approach is not a reassurin vanguard design.

Adding to this *ragoût amibigu*, demand for commercial r estate has continued to sag in this part of town. Real estate consulta John Alschuler remarks that "Lower Manhattan has been at a competiti disadvantage with midtown for 40 years. You need a realistic first phase development that can stand alone." Now short "towers" that can be pigg backed later are being talked up.

Silverstein has already hired David Childs of SOM to design t replacement for the 7 World Trade Center tower at the north end of t site, and has begun construction [RECORD, April 2002, page 30]. Chil considered one of the most adept architects in New York at maintaini the demeanor of the harmless dolphin while swimming with sharks, h come up with his own master plan for the WTC site, as well. A rece scheme leaves the footprints of the towers free for a *(continued on page 2*


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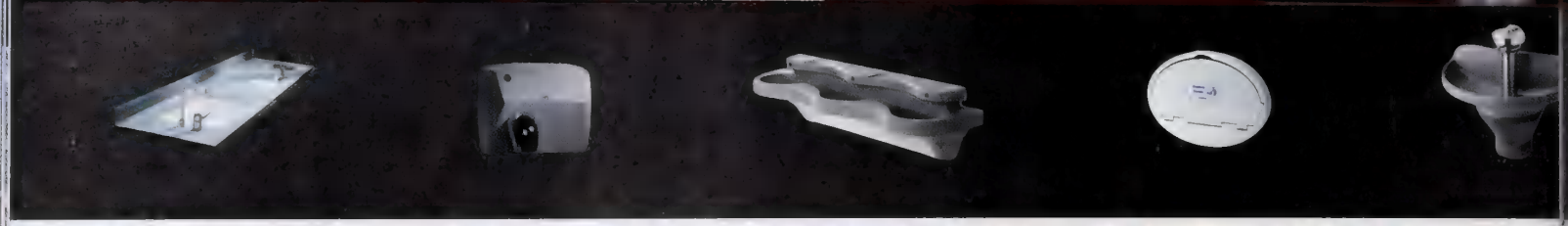


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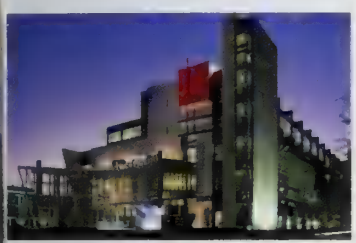
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1.

Augusta, Georgia

Stanley Beaman & Sears Architecture marry nature and technology, playful forms and trauma-center needs, in this 98-bed children's hospital.



2.

Furukawa, Japan

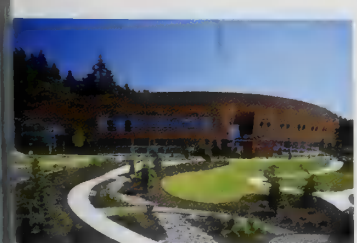
A women's clinic by Hitoshi Abe questions conventions with a transparent but not exposed, white but not sterile, modern structure.



3.

Orlandia, Brazil

A skillfully crafted dental clinic and laboratory building by MMBB Arquitectos takes lessons from the neighboring Brazilian vernacular.



4.

Puyallup, Washington

Fitting into its natural surroundings, a children's health center by Zimmer Gunsul Frasca Partnership physically and metaphorically resembles an ark.

www For additional health-care projects, and more information on the people and products involved in the following projects, go to Building Type Study at **architecturalrecord.com**.

By John E. Czarnecki, Assoc. AIA

In the managed-care environment of the United States, insured consumers have a wide array of choices for hospitals, physicians, and other care provided in broad networks. Health-care systems, understanding the power of place, are competing for the attention of consumers not just with people and services, but with the physical setting, as well. Architecture is a tool to get health-care clients in the door.

According to the American Hospital Association, there are 4,924 hospitals in the United States, about 1,000 fewer than 20 years ago. Large health-care systems have consolidated and closed some hospitals, but construction continues as those same health-care systems focus resources on select hospitals and vie for consumers—and the best physicians—by adding buildings and sophisticated technology, and by constantly renovating. The number of health-care construction projects in the United States has declined in recent years, but the projects being built are more expensive. According to the annual survey by *Modern Health Care*, investment in health-care facilities has been fairly flat, at about $17 billion over the past four years, but spending on specialized facilities, such as those for women and children, rose 27 percent last year alone. Existing hospitals keep growing, often adding these specialized facilities—women's health centers, cancer-care centers, and clinics—onto already large campuses.

That was the case with the Medical College of Georgia in Augusta, which hired Stanley Beaman & Sears Architecture to design a children's hospital adjacent to its existing medical buildings. The former children's hospital had been within the larger hospital complex and appeared overbearing and institutional for both children and parents. The campus needed a unique identity for its child medical care and found one in its new Children's Medical Center, which is a fun and playful place for youngsters, yet features the latest care technology in a level-one trauma center.

Stepping away from the hospital campus offers further lessons in how architecture can draw patients. While the Children's Medical Center in Augusta employs color and tactile forms to attract youthful attention, the Mott Children's Center—a stand-alone facility—is more subtle in its appeal to the young, yet more specialized in its services.

But perhaps a look at care settings in other countries, with examples in Japan and Brazil, is necessary to see how even a modest women's clinic or child's dental clinic can be finely crafted based on modern aesthetic sensibilities. Armed with the creative freedom provided by design-savvy clients, the architects for these projects were able to produce settings that are as sophisticated as the clients who commissioned them. A beautiful, inspiring place to give birth or have a dental exam? It's possible, by design. ■

Children's Medical Center
Augusta, Georgia

1 **STANLEY BEAMAN & SEARS FUSE NATURE AND TECHNOLOGY WITH PLAYFUL, CHILDLIKE FORMS TO SERVE THE NEEDS OF A LEVEL-ONE TRAUMA CENTER.**

By John E. Czarnecki, Assoc. AIA

Architect: *Stanley Beaman & Sears Architecture—Burn Sears, AIA, principal in charge/project manager; Betsy Beaman, AIA, director of design; Kimberly N. Stanley, AIA, director of health-care planning; Veronique Pryor, senior project architect/designer; Karey Cooper, senior interior designer; Portia Gubatan Ellis, junior project architect/designer; Cindy Jaeggers, junior interior designer*
Client: *Medical College of Georgia*
Consultants: *Johnson Lashober & Associates (civil/structural); Nottingham, Brook & Pennington (mechanical, electrical, plumbing, and fire protection); Altamira (landscape); Luminance Design (lighting); Lorenc+Yoo Design (graphic design); Facilities Development (medical equipment planning); NBBJ (medical space planning)*
Construction manager: *R.W. Allen/Beers*

Size: *220,000 square feet*
Cost: *$42 million*
Completion date: *2000*

Sources
Curtain-wall system: *Kawneer*
Curtain-wall glazing: *Viracon*
Precast panels with custom pattern: *Cut Art Stone and Precast Co.*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

When the Medical College of Georgia hired Atlanta firm Stanley Beaman & Sears Architecture to design a new children's hospital, the goal was for it to become one of the top 10 children's hospitals in the United States within 10 years. With that lofty aim in mind, Stanley Beaman &-Sears set out to design the Children's Medical Center in Augusta, Georgia, as a marriage of nature and technology—nature as healer and technology as helper.

Context

The Children's Medical Center is adjacent to existing hospital buildings on the college's campus, and the old children's hospital was within those buildings. The Veterans Affairs Medical Center and the University Hospital are located on blocks immediately surrounding the campus, resulting in an overly sterile, institutional environment. Not surprisingly, the college wanted to create a new building with a unique image—one that did not necessarily look like a hospital.

Early in the process, Stanley Beaman & Sears met with numerous people affiliated with the hospital—120 physicians, nurses, and parents in 23 user groups—to gain input about what they sought in a children's hospital. The consensus was that they wanted a facility that was welcoming to the child and combined the best aspects of nature and technology in an environment of healing and learning. "It was a special group of really good thinkers," Stanley Beaman & Sears partner Betsy Beaman, AIA, says of the hospital's leadership. "Not everyone believes a building should have an idea, but this client did. They bought into the concept from the beginning, and that helped us achieve more creativity."



Solution

As difficult as it might sound, Stanley Beaman & Sears developed a graceful, five-story, 98-bed children's hospital that is both a level-one trauma center and, according to the firm's design statement, also has a "childlike sense of wonder" and is "playful enough for the toddler, but cool



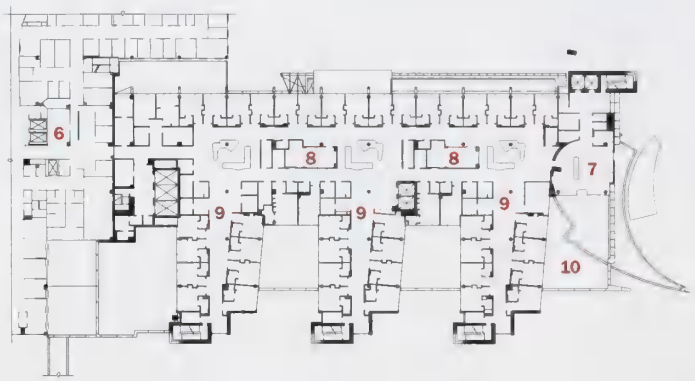




The entrance (opposite and above left) has a curving form to beckon visitors. A canted wall of glass (above right and below) has enlarged imagery of circuit-board patterns silkscreened on glass.



The corridor on the second floor (above), called the "technological arbor," has ceiling panels that resemble circuit boards, child-height window boxes, and stacks of video monitors showing scenes of nature.



TYPICAL 4TH AND 5TH FLOORS



FIRST FLOOR

1. *Lobby*
2. *Social services*
3. *Conference center*
4. *Administration*
5. *Café*
6. *Existing hospital*
7. *Waiting room*
8. *Play/activity rooms*
9. *Patient clusters*
10. *Family roof garden*

enough for the adolescent."

The design of the entire structure is based on a 5-foot grid in plan, section, and elevation. The exterior is composed of precast-concrete panels that look like oversize Legos, and large forms, such as a red square on the top floors and a blue cube on the northern facade, add playful variety.

At the main entrance, a curving glass-and-steel form appears to reach out and beckon visitors to the lobby. Inside, multiple curving forms are intended to suggest movement, stretching, changing—growth and transformation. Video technology is implemented to give glimpses of nature: A "video aquarium" is a wall of monitors in the lobby that display images of underwater scenes, and vertical stacks of monitors (opposite) showing images of nature enliven the corridor on the second and third floors that the firm calls the "technological arbor," along the northern portion of the building. The technological arbor has a canted two-story glass wall with enlarged silkscreened circuit-board patterns that give the appearance of organic, foliagelike imagery on the glass panes.

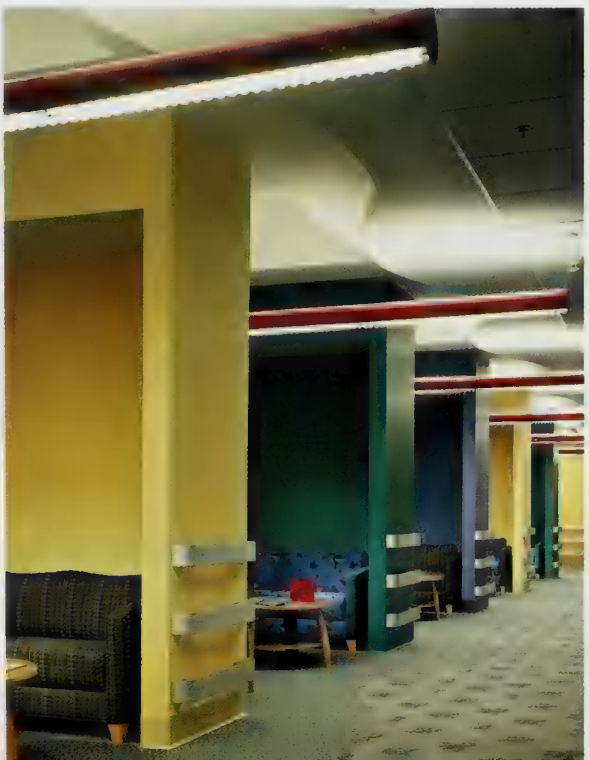
The abstract foliage motif continues inside the technological arbor, where both window boxes and Eterboard walls with indented patterns of dinosaurs and foliage are at child height to enable children to see and touch. There are also plastic and metal panels in the ceiling (opposite) that resemble circuit boards.

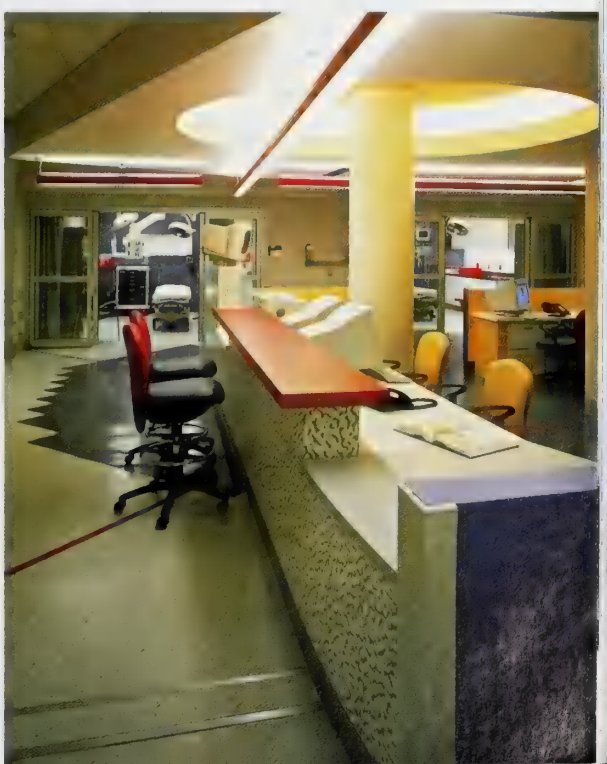
The 98 patient rooms on the fourth and fifth floors are all single rooms and have sleeping space for two parents, if needed.

Commentary

The new building is child-friendly while also allowing the Children's Medical Center to offer innovative programs that will enable it to achieve its goal of becoming one of the top hospitals in its field. "We really love the idea," Beaman says, "of transforming family and child into a healthy outcome." ■







The lobby (above) has many curving forms to denote movement and transformation. A palette of green, blue, red, and yellow makes individual waiting areas (below left) and nurse stations (below right) vibrant.

Sekii Ladies Clinic
Furukawa, Miyagi, Japan

2 **A WOMEN'S CLINIC IN JAPAN BY HITOSHI ABE IS A MODERN STUDY IN THE MANIPULATION OF VOLUMES, TRANSPARENCY, AND LIGHT AND SHADOW.**

By Naomi Pollock, AIA

Architect: *Atelier Hitoshi Abe—Hitoshi Abe, Katsunori Abe, Takayuki Saito, Noriko Rinno*
Client: *Private doctor*
Consultants: *TIS & Partners (engineering); Masahide Kakudate Lighting Architect & Associates (lighting)*
Contractor: *Takaya Kensetsu*

Size: *16,568 square feet*
Cost: *$3.4 million*
Completion date: *2001*

Sources
Porcelain tile: *INAX*
Glazing: *YKK*
Flooring in waiting room and examination room: *Tajima*
Tiled carpet in lounge and ward room: *TOLI*

WWW For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

In Japan, where subsidized health care is alive and well, there is no shortage of hospitals or clinics. So when a trio of obstetricians—a father, son, and daughter-in-law—decided to hang out their shingle together, they had to choose their site carefully. Their clinic had to be in an area that was not saturated with maternity centers or so remote that it would fall prey to the country's plummeting birthrate.

Context

With its growing high-tech industry and dearth of birthing clinics, Furukawa, a small city 2½ hours north of Tokyo by bullet train, fit the bill perfectly. For a site a short distance from the town center, the family hired Sendai architect Hitoshi Abe to design a combined birthing center, outpatient clinic, and dual-generation residence for the doctors and their families.

They chose a property on a two-lane highway near fast-food restaurants, car dealers, and gas stations. While this type of garish, car-oriented, neon-lit landscape is a familiar sight outside Japan's major cities, it was "definitely not the kind of place to give birth in," says Abe.

Solution

Despite the incongruity of setting and program, the architect did not want to create a fortress that would block out the surroundings completely. Instead, he planned a gradual transition from the real world to a sacred one, suspended from daily life, where mothers could welcome their new progeny in a relaxed environment. The sequence begins at the ground-floor clinic, organized along a circulation spine that leads from the reception and waiting area to exam and X-ray rooms on one side and medical offices, a play area, and three small gardens on the other. Though open to the sky, the gardens are shielded by ½-inch-thick film-treated glass wrapping the entire first floor. Gardens and glass together edit the view and protect the internal space but maintain an ambiguous border between inside and out.





The blocklike volumes of the porcelain-tile-clad second floor appear to float or hover over the mostly transparent first floor.

The first floor, in turn, buffers the second floor maternity center by lifting it above street level. In contrast to the clinic, which is open only during the day, the birthing center operates around the clock. A stair leads directly from the ground floor entrance to the maternity center upstairs where

Naomi Pollock, AIA, is RECORD's *Japan-based contributing editor.*



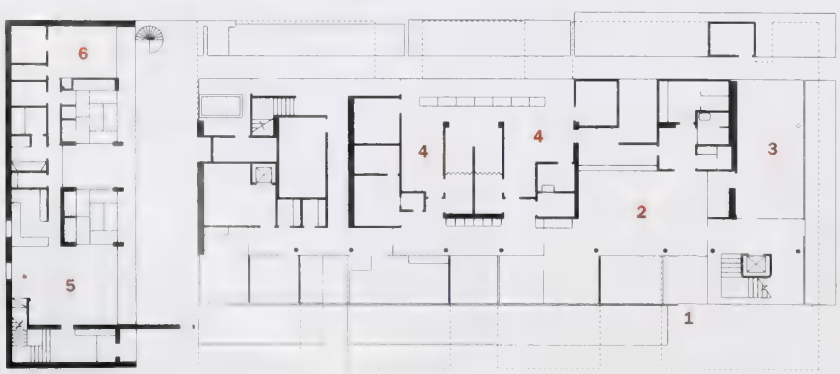


1. *Entrance*
2. *Lobby*
3. *Multipurpose room*
4. *Exam rooms*
5. *Living/dining room*
6. *Bedroom*
7. *Lounge*
8. *Delivery room*
9. *Patient rooms*

Abe's design (above) takes visual cues from the work of Le Corbusier. At night, the building takes on a different character as the first-floor spaces visually dominate.



SECOND FLOOR



FIRST FLOOR

N 0 10 FT. 3 M.



spaces for labor, delivery, and a newborn nursery fill one end while 14 patient rooms occupy the rest of the floor. "When we calculated [the square-footage requirements], the second floor came out much larger than the first," says Abe. This discrepancy was handled by cantilevering the building 25 feet on either side. Held up by two rows of steel columns running the length of the building, a series of braces on the second floor support the overhangs and counter lateral forces.

In contrast to the first floor, where the glass wall masks the syncopated rhythm of solids and voids, the solids upstairs are clearly articulated but clad with white tile. Bold and blocky, the second floor hovers over and casts such a deep shadow on the ground level that, visually, it almost melts away. "I wanted the quality of a white, floating volume," explains Abe.

Though self-contained and inwardly focused, the maternity clinic is not entirely isolated from its environment. While some patient rooms open directly onto one of two garden terraces, others have windows providing oblique street views. "Looking outside on a diagonal somehow makes you feel separated from the city grid," explains Abe.

Located behind the clinic, the doctors' house is a discrete, two-story volume rooted in the ground and covered with gray tiles. "The young couple said they wanted to commute, so a garden separates the hospital and the house," says Abe. Inside the house are two independent homes—one for the older doctor and his wife and the other for the young couple and their children.

Comment

In Japan, where medical facilities tend to be cold, no-nonsense affairs, this clinic comes as a real surprise. Open but not exposed, white but not sterile, it hardly looks the part. Abe's solution questions conventions and turns adverse conditions into catalysts for invention. His building may not inspire local residents to have more babies, but it will provide a more pleasant experience for those who do. ■



Dental Clinic
Orlandia, Brazil

3 **WITH A MINIMAL MODERN STRUCTURE, MMBB ARQUITECTOS THROW OUT CONVENTIONAL WISDOM ABOUT WHAT A DENTAL CLINIC SHOULD LOOK LIKE.**

By John E. Czarnecki, Assoc. AIA

Architect: *MMBB Arquitectos—Angelo Bucci, Fernando de Mello Franco, Marta Moreira, Milton Braga, partners on the project; Keila Costa, Sandra Llovet Villa*
Client: *João Gomes Pereira and Mariana M. Rodrigues Pereira*
Consultants: *Ibsen Puleo Uvo (engineering)*
Contractor: *Jean Carlos dos Santos*

Size: *1,960 square feet*
Cost: *$50,000*
Completion date: *2000*

Sources
Wood brise-soleil: *Fridel*
Glass: *JV Vidros*
Metal doors: *Rosseto*
Tile: *Granilite*
Office furniture: *Haydee*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Most of us go to the dentist because we have to, not because the dentist's office is a beautiful place to visit. When conjuring up an image of a dental clinic as a building type, one usually does not think of a finely crafted modern structure. São Paulo–based MMBB Arquitectos has designed such a facility, however, in Orlandia, Brazil, a community of approximately 30,000 people just outside São Paulo.

Context

MMBB, a four-partner, 10-person firm, implements a clean, Minimal modern vocabulary of concrete, natural wood, and tile in many of their projects, including a number of single-family homes and public infrastructure projects such as toll booths and a bus terminal. The 16-year-old firm was hired by a husband-and-wife partnership, in which the wife is a dentist for children and the husband makes dental prosthetic devices, to design the clinic. One of the MMBB partners, Angelo Bucci, is a friend of the client. The architects and the clients are both at similar midcareer points in their lives and share modern aesthetic sensibilities. That relationship made a major difference for this project, in which all four design partners had a role. "The client was supporting our architecture. They trusted us and gave us freedom to do it the best way we could," said MMBB partner Fernando de Mello Franco. "Especially in the case of a small city like this, where a design like the clinic is not easily understood by everyone, this client was special."



The client chose a corner lot in a residential neighborhood for the clinic. Most of the surrounding single-family homes are about 50 years old, with front verandas and tile roofs.

Solution

While De Mello Franco says, "We are interested in designing the city and not just an object," his firm should be credited for both creating a beautifully detailed object building and maintaining urban scale continuity. MMBB's sophisticated solution picks up on lessons from the neighboring Brazilian vernacular without mimicking the surrounding homes stylistically. It is approximately the same height as they are, maintains a similar relationship to the street, and is constructed of materials that are consistent with theirs.

"This project has much to do with the way that people relate to the city and the street," De Mello Franco says. The clinic's inviting covered portico (at far right above and opposite) is a transition space from the public sidewalk to the front door in a manner similar to the verandas of nearby homes that serve as transition spaces between street and house.

Taking a lesson from the neighboring homes built with a lower level, allowing humidity to rise, the clinic is composed of two floors with the lower one partially underground and partially covered by the overhang of the one above. The lower floor is naturally ventilated with operable windows. The upper floor, which from the back of the building appears simply to be a





1. *Entrance*
2. *Laboratory*
3. *Administration*
4. *Equipment*
5. *Garden*
6. *Entrance*
7. *Waiting area*
8. *Toys*
9. *Sterilization*
10. *Office*

With a poured-in-place concrete wall defining a portico entrance on a residential corner (opposite), the building has an imbuia wood brise-soleil across the street-level facade (above) to shade the clinic spaces.



GROUND FLOOR



FIRST FLOOR

N

0 20 FT.
6 M.





raised, floating platform seven steps above ground level, is air-conditioned with floor-to-ceiling single-pane glazing.

Upon entering the portico, visitors ascend the concrete steps to the upper floor—the only floor that the public has access to—devoted primarily to a reception area and two dental exam offices. The lower level, with a separate, private entrance, has laboratory, equipment, and administration spaces. The street-level north elevation, with an imbuia wood brise-soleil for sun-shading, evokes imagery of the older, pile-supported structures of São Paulo. An expressive poured-in-place concrete wall on the western edge of the building, which changes character as sunlight and shadow move across it, separates the street from the portico paved in Portuguese mosaic tile. A grid of steel columns supports the structure, and the single-pane glazing is connected to the floor and ceiling with simple steel brackets. "Everything is very simple—the way that we designed it and the result, as well," De Mello Franco says.

Commentary

Implementing a modest palette of materials in a beautifully detailed structure, MMBB Arquitectos offer an example of sumptuous spaces for a dental clinic that would make most American dentists drool with envy. Given the differences in climate, construction methods, and construction costs, is a dental clinic like this possible in the United States? Perhaps, but not likely at the low cost—$50,000, at approximately $25 per square foot—that it took to complete this building. De Mello Franco explained that labor was cheaper because (1) this project required a fairly simple construction, and (2) it was built outside of São Paulo, where it would have been more expensive. Climate differences and American standards of building construction and accessibility would require variations to a design such as this, but that shouldn't stop architects from reconsidering the impact of physical space in the dental visit. ■



The clinic's lobby (opposite and above), entered from the portico, is transparent, with windows on three walls.



Stairs (below left) are simple concrete, and imbuia wood facing the clinic area (below right) keeps it cool.



Mott Children's Center
Puyallup, Washington

4 **ZIMMER GUNSUL FRASCA PARTNERSHIP DESIGNS A SETTING FOR CHILDREN WITH NEUROMUSCULAR DISORDERS AND DEVELOPMENTAL DISABILITIES.**

By **Sheri Olson, AIA**

Architect: *Zimmer Gunsul Frasca Partnership—Bill LaPatra, AIA, principal in charge; John Mess, AIA, project manager; Erik Mott, Assoc. AIA, senior designer; Jennifer Schiele-Schroeder, interior designer; Elaine Gagnon, Assoc. AIA, Debra Fabricius, Natalia Khouw, Colleen James*
Client: *Good Samaritan Hospital*
Consultants: *Chalker Putnam Collins & Scott (structural); David Evans & Associates (civil); Blue Sky Landscaping (landscaping); McMullen Electric (lighting); Michael Yantis Associates (acoustical); Lynn Goodpasture (art); Charles Fitzgerald (art); Michelle Van Slyke (art)*
Contractor: *Absher Construction*

Size: *42,000 square feet*
Cost: *$8.6 million*
Completion date: *2000*

Sources
Metal/glass curtain wall: *Efco; ATAS International*
Masonry: *Trenwyth CMU*
Skylights: *Evergreen House*
Doors: *Vancouver (wood); Efco (sliding, entrances); Ceco (metal)*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

Noah's Ark, a rich metaphor for Good Samaritan Hospital's Children's Therapy Unit and Child Development Center in Puyallup, Washington, suggests safe passage through difficult challenges. "The head of fund-raising suggested the theme as a way to appeal to donors, but we didn't want a boat with animals poking out of the windows," recalls William LaPatra, principal at Zimmer Gunsul Frasca Partnership (ZGF), Seattle. The architects sidestepped obvious kitsch to create a distinctive, noninstitutional setting for children with birth defects, neuromuscular disorders, and/or developmental disabilities, many of whom may visit the facility several times a week for years.

Context

The therapy unit had been dispersed among postwar cottages for more than 30 years. Puyallup's recent, rapid transformation from a rural to a suburban community, thanks to its affordability and proximity to Seattle, increased patient volume to more than 600 kids a week and drove the need to construct a new center.

Increasing interdisciplinary collaboration and patient convenience, the new, freestanding facility brings together laboratory, workshop, and therapeutic components, as well as testing and fabrication of prosthetics devices, into one building. One challenge for the architects was the variety of occupancy types with different mechanical and acoustical requirements. For example, the metal grinders that customize wheelchairs, bicycles, and skateboards for disabled children share the facility with a sensitive, state-of-the-art motor-analysis lab. As part of the hospital's mission to increase community outreach, the project also includes a day-care center for disabled children and a multimedia classroom for education programs, training, and presentation of research.



Solution

Like an ark, the bowed wood facade of the 42,000-square-foot children's center floats in a 3-acre meadow on the edge of the hospital campus. Winding paths of crushed rock, smooth pebbles, and wood chips provide intentional challenges for children as they move from the parking lot to the entry. "The landscape and building are partners in therapy," says director Linda Yates.

Horizontal cedar siding wraps the curved 120-foot-long front wall—an unusual choice for a medical building but vital in establishing the center's noninstitutional ambience. A series of portholes and a short bridge across a shallow moat to the front door evoke a nautical theme.

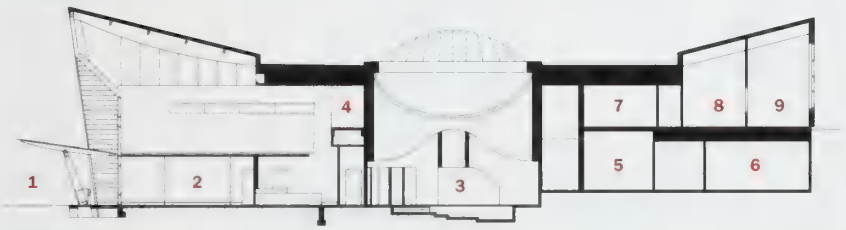
A two-story-tall lobby allows a glimpse of activities on the second floor and provides a generous waiting space for siblings who often accompany patients. From here,

Sheri Olson, AIA, RECORD's Seattle-based contributing editor, is author of Miller/Hull *(2001) and architecture columnist for the* Seattle Post-Intelligencer.

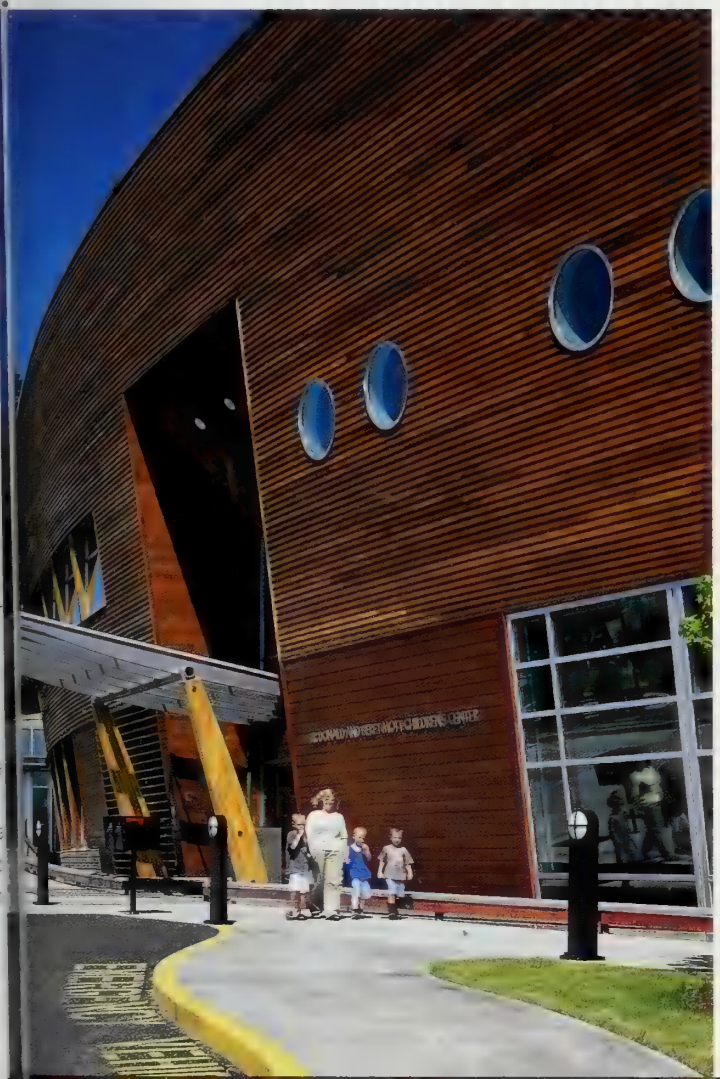


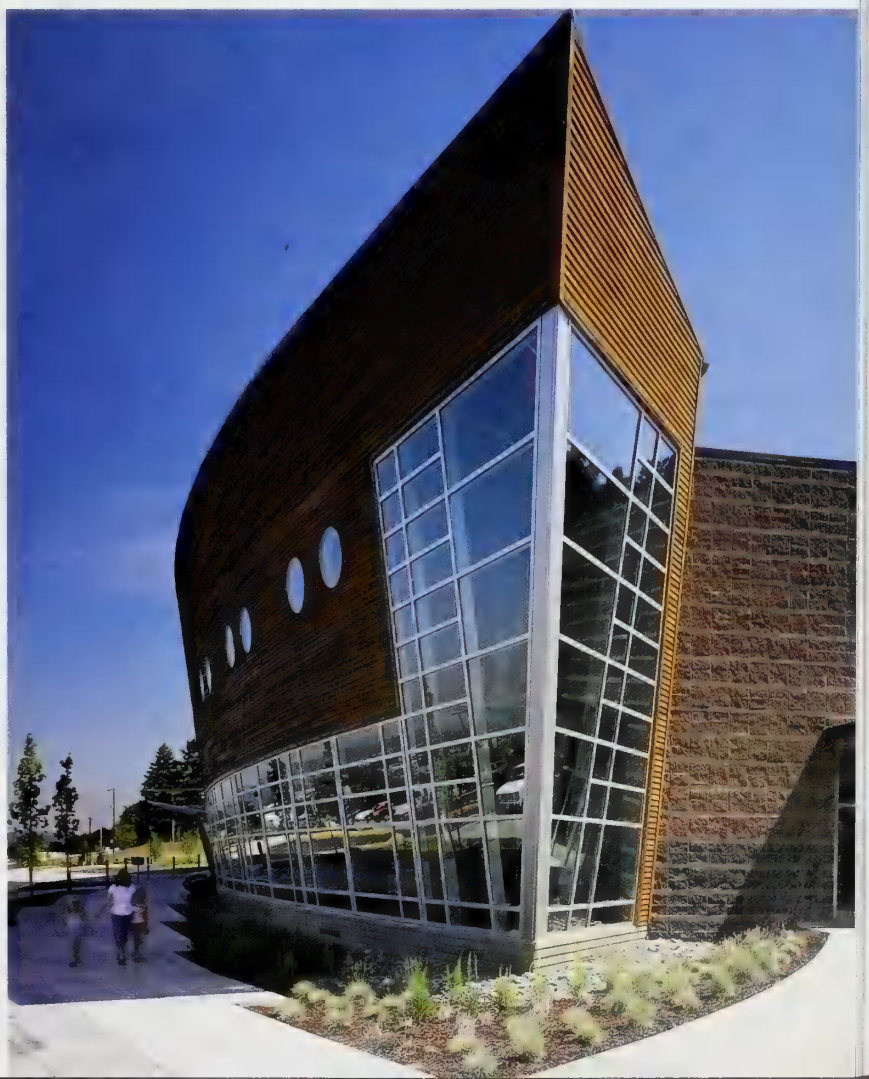
The landscape (above) welcomes children to the entrance (below), which bows and curves to look similar to an ark. A two-story primary treatment room (opposite) allows views outdoors as well as to second-floor activities. Porthole windows, donated by a marine-salvage company, dot the curved exterior.

1. *Entry bridge*
2. *Lobby/reception*
3. *Aquatic therapy*
4. *Bridge*
5. *Motor lab*
6. *Research lab*
7. *Sewing*
8. *Molding*
9. *Grinding*



SECTION A-A





A second-floor waiting area (above) has views to a ground-floor space (below) adjacent to the hydrotherapy room with its fused-glass wall.



animal tracks sandblasted in the stained-concrete floor help kids navigate the building.

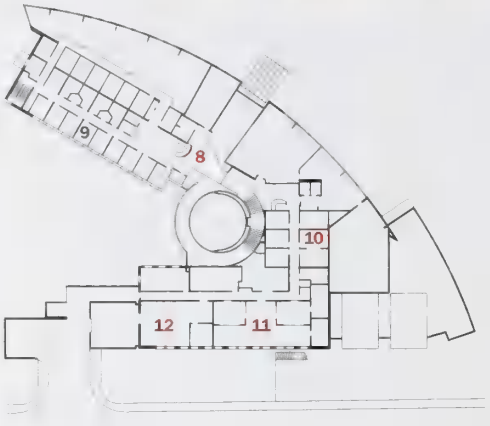
Just beyond the reception desk, a kelp forest rendered in fused glass enlivens the windows of the adjacent two-story-tall cylinder, the hydrotherapy room, the centerpiece of the facility and the backbone of the circulation. Along the curved [illegible] that wrap the drum, 40 [illegible] across the surface at [illegible] views inside of the nautil[illegible]

pool. Within, a 9-foot band of gentle waves and giant seashells in glass-tile mosaic circles the room.

The large treatment room on the main floor contains the strongest ark imagery. Here, curved Glu-Lam beams and columns mimic the timbers of a wooden boat's hull, creating a vaulted, light-filled space. A canted glass window wall that starts at floor level balances the project's sense of refuge and prospect and allows children working on mats or low benches to have sweeping views of Puyallup Valley to the south.

Commentary

ZGF's open-ended approach to the ark theme—neither too literal nor too abstract—has crossover appeal for toddlers and adolescents who will have repeat visits over many years. The design's success lies in its lack of condescension toward its young clients. Rather than hide the center's serious medical purpose, physical therapy spaces are front and center in the project, and the building itself creates challenging experiences that foster independence. ■



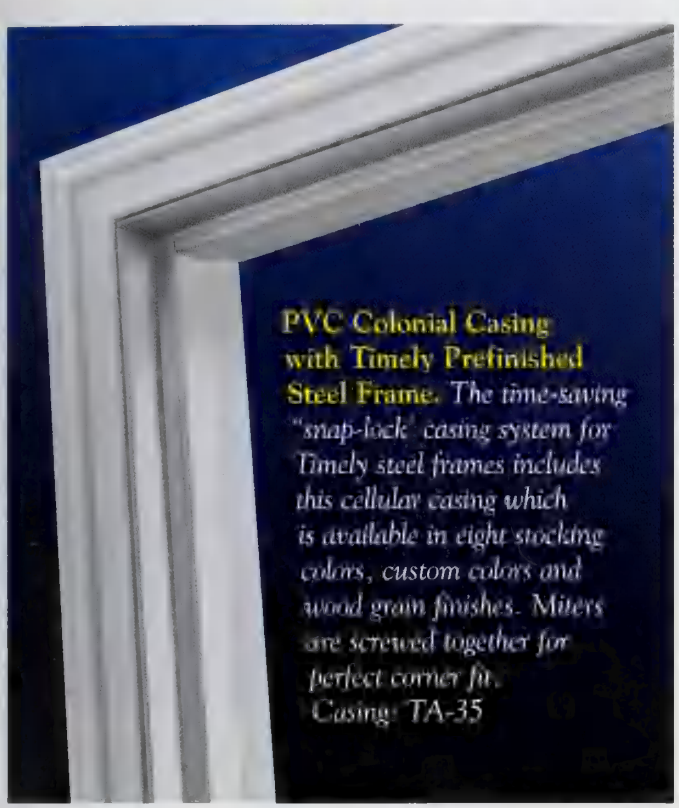
SECOND FLOOR



FIRST FLOOR

1. *Reception*
2. *Primary treatment*
3. *Classroom*
4. *Pool*
5. *Administration*
6. *Clinical research lab*
7. *CDC classroom*
8. *Psych/speech lobby*
9. *Psych/speech therapy*
10. *Casting/evaluation*
11. *Fabrication*
12. *Workshop*

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By Sara Hart

Seventy-six million babies were born in North America from 1946 to the end of 1964. Aptly called the Baby Boom Generation, those surviving in 2030 will be between the ages of 66 and 84 years old, according to the American Association of Retired Persons (AARP). This will be the largest age-identified demographic since census takers started counting. Surrendering to the inevitable, economic and social prognosticators are predicting gloom for the time when senior baby boomers begin to place an enormous strain on the health-care system, the economy, and many commercial and industrial markets.

There is no doubt that this bad news is a looming crisis for both commodity providers and end users. The housing industry, which, according to industry analysts, has not kept pace with other markets, has been the slowest to acknowledge the challenges it will soon face. Whereas the automotive and electronics industries, pressured by competition from abroad, have reinvented their production processes and business models, residential builders have coasted on time-honored (i.e., unchallenged) practices. The housing industry both benefits from and is hampered by lack of competition from abroad—and home. Most of the industry is locally based, and housing is produced by small construction companies.

This is not to say that there have been no improvements. The industry has responded to the forthcoming shortage by adopting some methods of prefabrication in the controlled factory environment—most commonly, panelized construction (SIPS, etc.) and modular construction. Both systems reduce waste and speed the process, but many operations—HVAC and plumbing systems, window and door installations, and most finishes—still require conventional, on-site construction methods. The growing consensus is that these improvements reflect only incremental progress, not the radical innovations needed to transform the industry.



Single-family houses. MIT researchers are developing a Chassis and Infill component system (above) to replace conventional or panelized construction. The emphasis is on high-strength, high-performance, and lightweight new materials.

To the reader, this static situation might not seem like the province of architects. After all, 80 percent of so-called manufactured housing (to distinguish it from custom, architect-designed homes) does not enjoy the customized services of a design professional. However, there are growing pockets of institutional, public, and private researchers and analysts who are convinced that the problem is not the population, but rather the enormous gulf between new technologies and the home-building industry, and that indeed it is, or should be, the responsibility of the design professions and construction industry.

So convinced are researchers at the Massachusetts Institute of Technology (MIT) that they began a far-reaching investigation called "Changing Places." Comprised of a multidisciplinary consortium of university departments and private-sector industries guided by the university's Department of Architecture and the renowned MIT Media Lab, the research group is developing next-generation systems to close the gap between new technology and housing. "House_n: The MIT Home of the Future" is a research initiative within Changing Places that is currently developing methods to integrate digital and building technologies with architecture.

House_n (the "n" being the unknown, similar to the variable that guides problem-solving in mathematics and science) is fueled by criticism

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 158 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

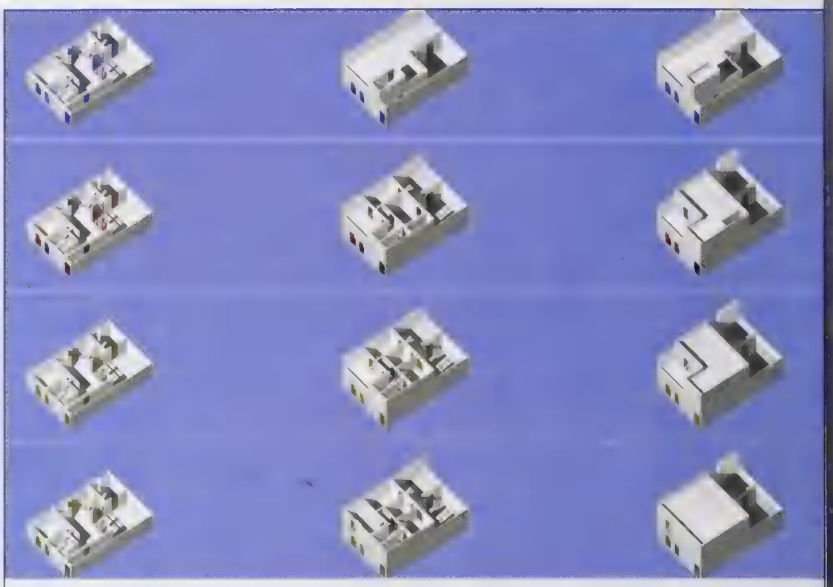
1. *Explain why the housing industry needs to make changes.*
2. *Discuss new trends in housing research.*
3. *Describe innovations in the housing industry.*

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of a housing industry seen as antiquated compared to other industries, an opinion shared by federal housing agencies and some building industry analysts. Critics argue that digital technologies are creating profound changes in the way people live, work, communicate, shop, and manage resources. Most dramatic is evidence that technology is allowing all these activities to happen in the home, with the most important for baby boomers being the ability to receive medical care at home and remain autonomous as they age.

"The current trend to move to retirement communities or progressive-care facilities will slow," says Jane Rohde, AIA, a Baltimore-based architect and principal of JSR Associates, a practice specializing in senior housing and health care. Pressure to innovate or perish comes not from the ivory towers of academia but from the baby boomers themselves. Unlike previous generations, boomers are more affluent, educated, and assertive. "They want what they want, and they want it now," says Rohde, adding that "aging in place"—that is, in the home—is the new paradigm.

"THEY WANT WHAT THEY WANT, AND THEY WANT IT NOW ... AGING IN PLACE" IS THE NEW PARADIGM.



Shape grammar. José Duarte, an MIT House_n researcher, has developed a software tool to encode the shape grammar, or design principles, of architect Alvaro Siza. In the 1970s, Siza developed a system (unrealized) to increase user participation in the design of housing in Malagueira, Portugal.

Professor Kent Larson, principal investigator for House_n, could not agree more, while noting that the current method of home building cannot meet these needs. Larson and the MIT researchers want to overhaul the residential-construction business by moving it away from the labor-intensive, inflexible field-erected tradition. "The construction of a new home in the U.S. typically consists of 80 percent field labor and 20 percent material costs, an extraordinarily high labor component compared with other industries," he says. This is not a good ratio when general contractors consider a shortage of skilled labor to be the biggest challenge facing the housing industry today, according to Larson. Labor costs more, so houses cost more, but many agree that the quality has decreased, at least in relation to the costs.

Larson's contentions are supported by both the housing industry and related federal agencies to varying degrees. The National Association of Home Builders (NAHB), a trade association with 200,000 members representing more than 50,000 companies that build greater than 80 percent of all U.S. homes, and the Partnership for Advancing Technology in Housing (PATH), an agency of the



Living laboratory. This concept rendering shows a possible configuration of the prototype house to be constructed at MIT. The component infrastructure will permit hundreds of sensing components to be installed in nearly every part of the home. These sensors will be used to develop innovative user-interface applications.

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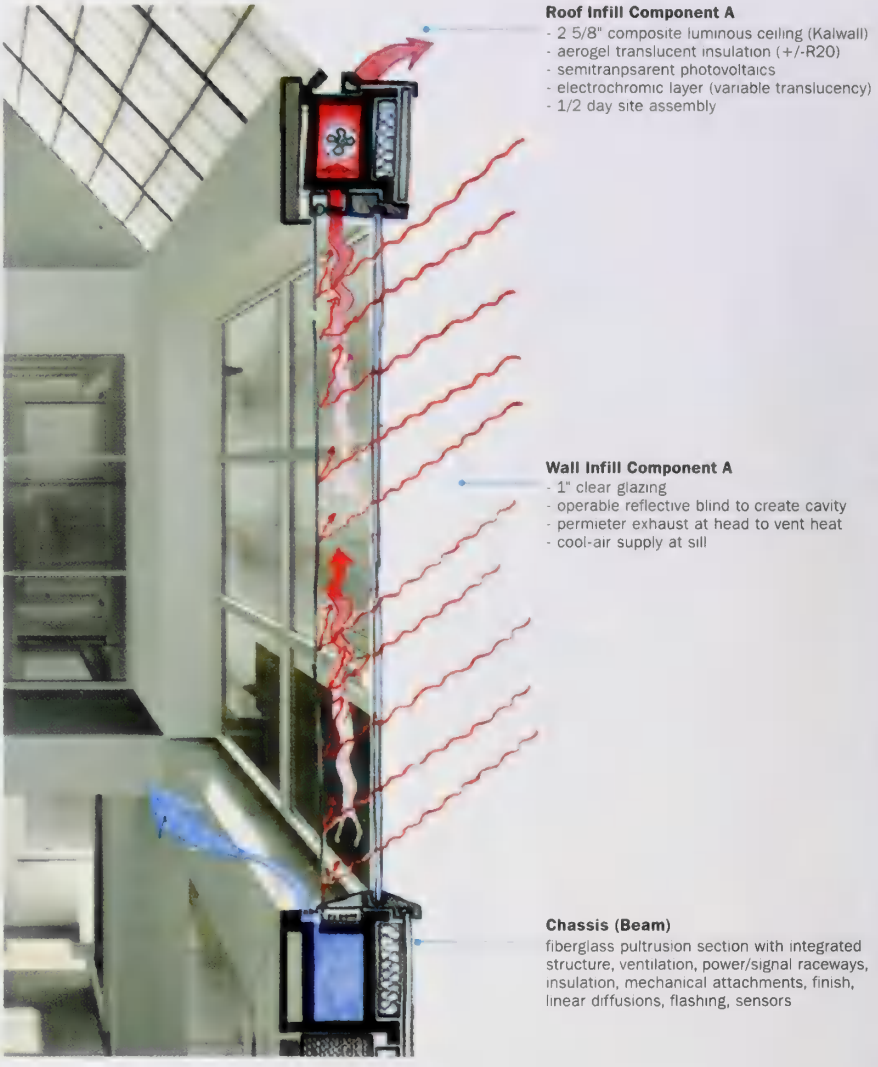
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Connecting anything, anywhere. A model based on the Chassis and Infill system was developed to test distributed-network concepts. Beams, columns, appliances, and other elements will have embedded computational technology whose function will depend on the function of each element and its relationship to the others. This model was developed by House_n graduate students T.J McLeish, Tyson Lawrence, H. Sharkuma, and Deva Seetharam.



CHASSIS + INFILL COMPONENT SYSTEM: VENTILATED ACTIVE FACADE

Department of Housing and Urban Development (HUD), are involved in their own research.

A report issued two years ago by HUD acknowledges the crisis in the housing industry. Prepared by the Center for Housing Research at Virginia Polytechnic Institute and State University, "Industrializing the Residential Construction Site" recommends that builders industrialize production by following the example of other manufacturing industries.

THE SUCCESS OF ANY RESEARCH DEPENDS ON HOW CLOSE IT COMES TO REALITY—TESTING AT FULL SCALE IN REAL TIME.

Faced with global competition, many have adopted organizational strategies called Enterprise Resource Planning (ERP) systems. Such a system includes Just-In-Time (JIT) supply, a manufacturing strategy that eliminates waste by providing the right part at the right place at the right time. Design for Manufacture and Assembly (DFMA), another strategy, reduces costs and improves quality by developing a design based on how all the parts will be assembled or manufactured. ERPs coordinate all these strategies with databases that can translate a broad range of formats.

Larson's main criticism with these tepid improvements is that "all result in environments that are difficult and disruptive to change over time. They do not easily accommodate new and rapidly evolving technologies or customization demanded by the baby boomers. They also do not easily accommodate the many new products being developed by building companies that are trying to make the transition from commodity suppliers to providers of systems and services. Panelized and modular methods of construction are only suited for new construction, and not for the important renovation and interior fit-out market."

Living lab

The success of any research depends on how close it comes to reality—testing at full scale in real time. For its research house, the House_n group has designed a single-family dwelling to be built near the MIT campus. House_n will be a multidisciplinary "living laboratory," inhabited by volunteers whose activities will be monitored by the researchers. This is not reality TV, but the scientific endeavor to answer questions such as: Can the proper integration of technology and architectural design motivate life-extending behavioral changes? Can natural resources be conserved by better monitoring?





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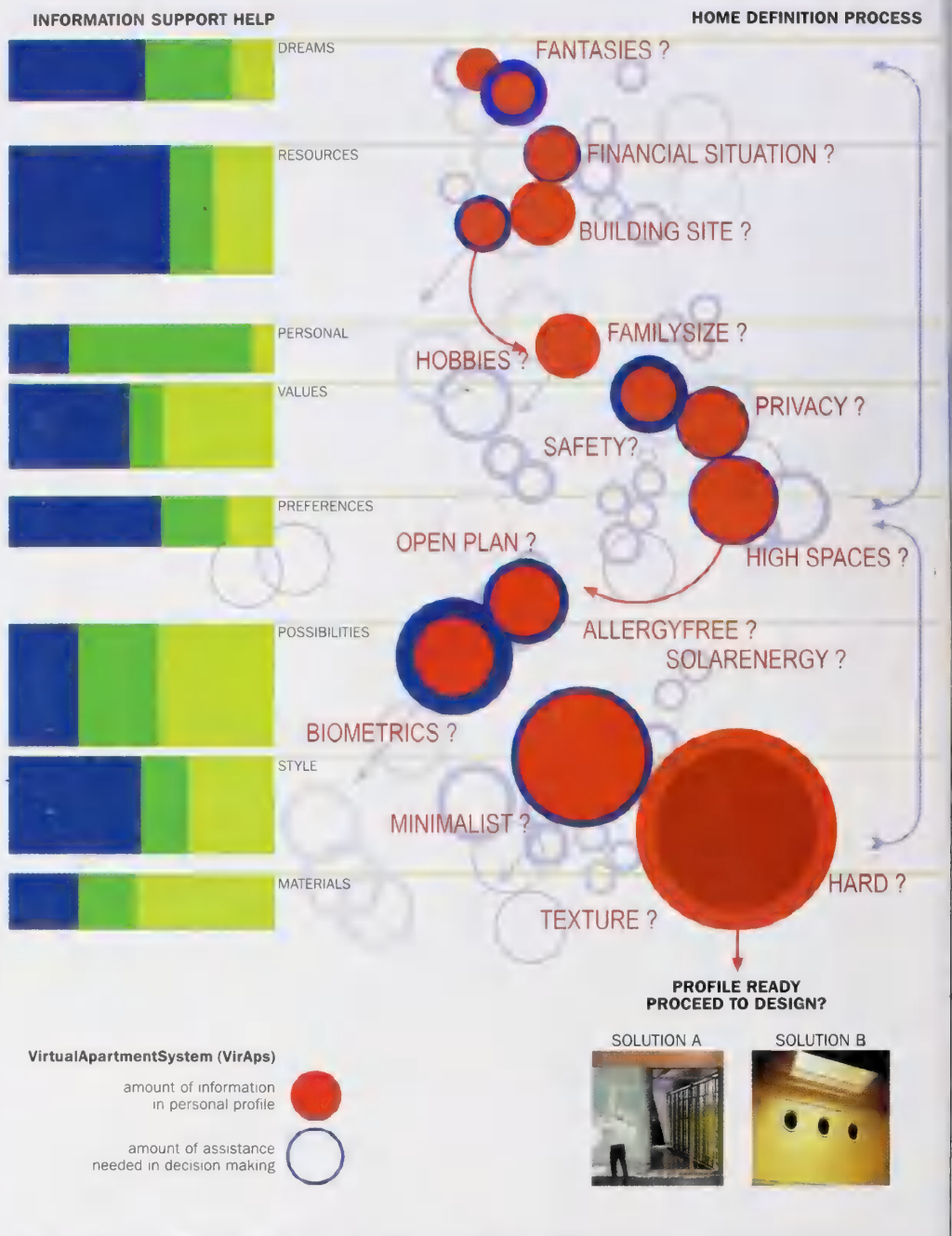
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From a building-science perspective, the research house will test a new component-based building system, or Chassis and Infill, as the researchers have termed it. This is a determined effort to produce a method of construction that will result in a more flexible house, reversing the ratio of field labor to materials. As the name implies, Chassis and Infill borrows from the automotive industry's method of rapidly installing integrated parts. The Living Lab will be an integrated assembly. Under its provisions, the chassis will be composed of protrusion glass-fiber composite beams and columns that will provide structure, insulation, sensors arrays, lighting, signal and power-cable raceways, and ductwork. The infill components will include integrated wall/floor assemblies, specialty millwork, display systems, and networked appliances and devices. The theory goes that the infill components can be replaced or upgraded without disruption to the chassis. Of course, integration will require that industry standards be developed so that connections of different brands of materials can be easily interchangeable.

Ultimately, Chassis and Infill represents "mass customization," the latest buzz phrase in academia and commercial building. The MIT investigators have developed their own ERP system, in which Larson identifies three elements necessary to mass customization.

The first is front-end software called a "preference engine"—a computational system that mimics the architect's initial client interview, which sets the program and aesthetic values and guides the conceptual stage of the design process. Whereas this Web-based system would not replace the processes used in a tiny percentage of architect-designed residential commissions, it would allow companies currently developing new residential technologies and building techniques to gather information about consumer needs.



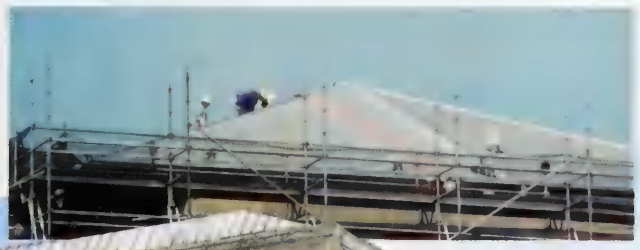
Assessing needs, preferences, values. **Finnish architect Jarmo Suominen has developed a database-driven, Web-based application called VirAps (Virtual Apartment System), which is an interactive planning system for the end user. This diagram shows the process of querying and accessing individual values and needs.**

Secondly, a "design engine" incorporates the shape grammar of the designer or architect. Shape grammar is a set of rules used to create coherent spaces. But this database would also encode other considerations, from universal design standards to energy conservation strategies.

The third and probably most essential engine is a production system to fabricate components for easy assembly on-site. Computerized Numerically Controlled (CNC) machines, already in use in large millwork and metal plants, allow for custom parts to be produced as fast as identical ones. If this technology can make it to the residential-construction market, Larson sees new materials, such as polymers, composites, and special-purpose metals, coming into residential use.

Meanwhile, there is another version of Chassis and Infill housing that appears to have been created with the baby boomer in mind. Finnish architect Jarmo Suominen, a visiting researcher at MIT, has created VirAps (Virtual Apartment System), which may make customization of multifamily housing easy for builders. The system is a database-driven, Web-based application (using the AutoDesk MapGuide server, Oracle, and Inews by Noitatieto), which allows consumers to participate in the design of their homes. In other words, they plan the chassis infill. The VirAps system is divided into two sections: business-to-business and business-to-consumer. Its database gathers information from architects, materials manufacturers, developers, and

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others, and stores it in the business-to-business section. This can be retrieved by consumers, who can search for areas and buildings and then design their apartments. The consumers are not completely on their own: Guided by an extensive Design/Help tool, an integrated cost manager calculates the implication of their choices. The completed plan is then sent back to the developer, and the apartment is built according to the specifications given. Several apartments have been planned in Helsinki that will use VirAps.

Home is where the heart (monitor) is

Sure, there are gadgets galore that will turn on your oven or air conditioner or feed the dog an hour before you arrive home. Home-security systems proliferate with ever more sophisticated motion sensors, alarms, and other detection devices and third-party alerts. The MIT investigators

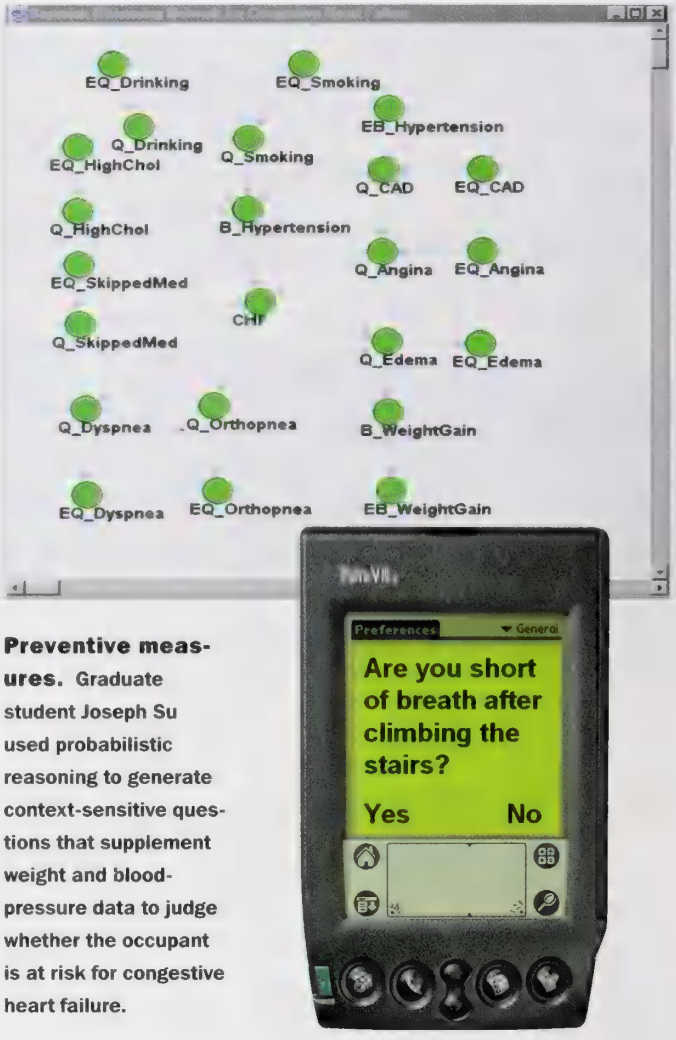
THE MIT INVESTIGATORS ARE LESS INTERESTED IN GADGETRY THAN THEY ARE IN WHAT CAN BE INTEGRATED.

are less interested in what gadgetry can be applied than they are in what technology can be integrated.

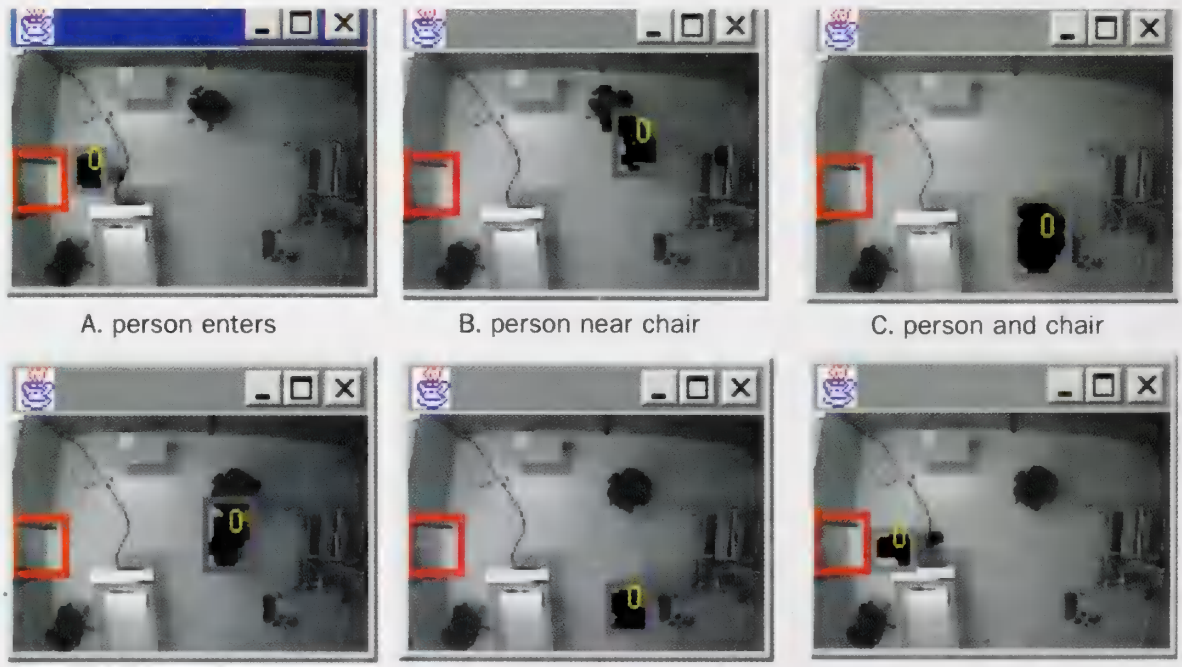
An integrated-component approach to building will allow for far more sophisticated, responsive environments to be created through the integration of low-cost sensing and communication media. The problem, again, is the difficulty of incorporating these complex and fragile technologies into environments with conventional stick-built construction. Technology companies developing products and services for home-based health care, work, commerce, play, energy conservation, and communication will require a sophisticated, agile, upgradable infrastructure in the home.

Opportunities for architects

Although this strangely egalitarian approach to design will make many architects and designers blanch, the larger point is not to replace the architect. The point of Chassis and Infill and VirAps approaches is to



Preventive measures. Graduate student Joseph Su used probabilistic reasoning to generate context-sensitive questions that supplement weight and blood-pressure data to judge whether the occupant is at risk for congestive heart failure.



A. person enters
B. person near chair
C. person and chair
D. person releasing chair
E. person moves away
F. person exits

Visual monitoring. This research explores the future of preventive medicine in the home. Biometric data alone is insufficient for early detection of many conditions. In the House_n lab, a computer-vision system identifies the location and activity of occupants. In the house of the future, the technology will be embedded in the environment.



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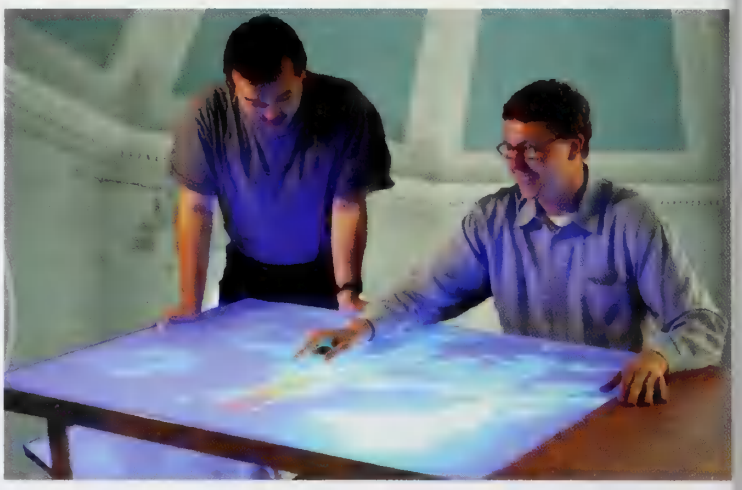
bring excellence into the design of those homes in which architects have never been strong collaborators. Larson thinks that digital tools and Web-based databases could make it possible for well-known residential architects to license their brands for mass marketing in the same way they do with furniture and other home accessories.

"Architects could play a major role and have a significant impact if they approach the problem at a higher level by developing strategies that allow for thousands of houses—rather than one—to be produced in line with a particular vision by creating 'design engines,'" insists Larson. The MIT team sees all of this digital technology becoming a reality with

TECHNOLOGY COMPANIES WILL REQUIRE A SOPHISTICATED, AGILE, UPGRADABLE INFRASTRUCTURE IN THE HOME.

sweeping ramifications for the home. Larson writes about the year 2015, in which "savvy, well-capitalized companies from outside the housing industry have taken over the market, and speculative developers have all but vanished. Behind the scenes, software agents have already negotiated with lenders, installers, and energy and service providers." The buyer will calculate monthly costs ahead of time, buy a 20-year warranty, and purchase upgrading and maintenance packages.

"The shrink-wrapped, digitally tagged house components arrive on the site four weeks after ordering, and three installers connect the pieces together using conductive, industrial Velcro Fasteners," imagines Larson. The owners move in two weeks later.



Students Byron Stigge and Tyron Yang made a horizontal-display prototype to help home occupants monitor and plan energy conservation.

Far-fetched? Hardly. Already, the electronics, automotive, materials, and other industries are replacing their commodity-based model by selling services, systems, and experiences. The house is next. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "The House of the Future Has Arrived" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 212).**
- **Fill out and submit the AIA/CES education reporting form (page 212) or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. The housing industry has not kept pace with other markets for all except what reason?
- **a.** no competition from abroad
- **b.** lack of competition at home
- **c.** use of time-honored practices
- **d.** existing methods are cost-effective

2. Prefabrication methods include which?
- **a.** panelized construction
- **b.** window and door installations
- **c.** finish construction
- **d.** plumbing systems

3. Where will medical care be delivered to aging baby boomers?
- **a.** in retirement communities
- **b.** in their home
- **c.** in progressive-care facilities
- **d.** in nursing homes

4. How are baby [illegible] different from previous generations?
- **a.** they are less [illegible]
- **b.** they are more affluent
- **c.** they are less assertive
- **d.** they are more patient

5. The construction of a new home in the U.S. typically consists of what percent material costs?
- **a.** 50%
- **b.** 40%
- **c.** 30%
- **d.** 20%

6. What is the main drawback of the ERP organizational strategies?
- **a.** they are more costly
- **b.** they do not accommodate changes
- **c.** they copy other industries
- **d.** parts must be ordered in large quantities

7. The theory behind Chassis and Infill building systems is which?
- **a.** the chassis and infill are completely independent of each other
- **b.** all infill components are completely interchangeable
- **c.** infill components can be replaced without disrupting the chassis
- **d.** the chassis will determine the wall/floor assemblies

8. Which is an example of mass customization?
- **a.** panelized construction
- **b.** modular construction
- **c.** Chassis and Infill
- **d.** Just-In-Time

9. Which is not one of the three elements essential to mass customization?
- **a.** preference engine
- **b.** VirAps
- **c.** production system
- **d.** design engine

10. How will more responsive, sophisticated environments be created?
- **a.** by skilled craft construction workers
- **b.** by computer design programs
- **c.** by architects designing for their clients
- **d.** by integrating sensing and communication media in building

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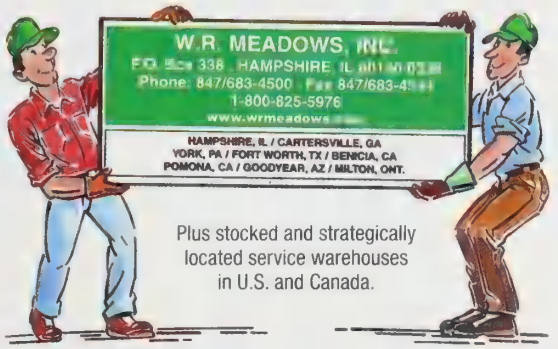
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Digital Architect

Digital tools for age-smart housing

By Alan Joch

In the days of segregation, the Ryan School was the only high school in rural Nelson County, Virginia, that accepted African-American students. Abandoned years later, the 30,000-square-foot building began to crumble, along with its legacy. Today, however, the Ryan School is being reincarnated. This summer, a local community-service agency will solicit bids for turning the old school into a refurbished, 31-unit independent-living residence for low-income people aged 55 and older. In itself, that's a worthy goal, but the Charlottesville-based Jefferson Area Board for Aging (JABA) has even loftier plans. JABA and its team of architects are developing a scheme that could make the Ryan School a model for future high-tech assisted-care facilities throughout the country.

They plan to turn the structure into an "age-smart building" that uses electronic monitoring and data-analysis technologies to help keep its seniors healthier and safer than if they lived without any type of supervision. "These technologies offer great hope, especially for our population," says Gordon Walker, JABA's C.E.O. "In rural areas, people move to nursing homes an average of two years earlier than in urban areas. The longer we can delay nursing-home admissions, the more everybody wins." The facility is slated to open in 2004.

Alan Joch is a business and technology writer based in New England. Contact him at ajoch@monad.net.

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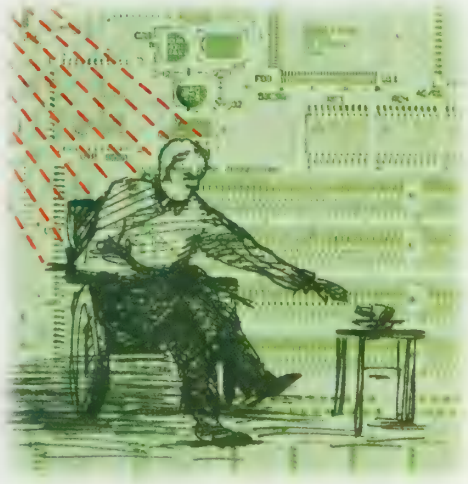
Early warning system

Hidden throughout the Ryan School's apartments will be a digital lifeline for residents. The core components—motion detectors, PCs, and data-analysis software—aren't unusual in and of themselves; each is widely used in conventional building security and retail applications. Rather, it's how these technologies are being used (and some fear misused) that makes the project noteworthy.

Rather than watching for intruders or studying shoppers' habits, the monitors will be placed near key areas of the apartments, including around stovetops and medicine cabinets. The goal is for caregivers to receive early warning signals if a resident leaves the stove on or neglects to open a cabinet where daily medications are stored, says Hunter Greene, AIA, director of architecture for LMW, a Roanoke-based engineering and architecture firm working on the project.

JABA is developing the elder-care monitoring system with the help of the University of Virginia's Medical Automation Research Center (MARC). The researchers at MARC expect that by monitoring mundane activities like shower usage and how often the refrigerator door is opened, the system can develop a daily activity profile for each resident. If a normal activity isn't undertaken for a day, a resident manager, family member, or rescue squad may be alerted.

According to Dr. Majd Alwan, MARC's director of elder-care technologies, the key to success will be using ubiquitous but nonintrusive sensors. "We don't use any cameras or microphones—anything that would be perceived as invasive," he says. One prototype places motion detectors in floor mats to track a resident's activity level.



Alwan says privacy considerations are guiding his research. MARC uses standard encryption techniques borrowed from business applications to scramble the data collected about individuals to ensure that personal information doesn't become available to prying eyes.

MARC's is one of several university research projects across the country that target new uses of computer technology for elderly housing. In May, the Massachusetts Institute of Technology established the "Changing Places" consortium, a joint effort of its Media Laboratory and Department of Architecture, to study sensing technologies for proactive health care, among other topics. The Georgia Institute of Technology operates the Aware Home, a test bed for unobtrusive monitoring devices [RECORD, March 2002, page 165]. One device embeds sensors in a picture frame to record movement in a room and develop activity patterns for residents. If these patterns change significantly, custom-designed analysis software issues an alert to appropriate recipients. Dr. Gregory Abowd, associate professor at Georgia Tech's College of Computing, calls the sensors "technologies of awareness." "This could give people the option of staying in their own homes longer," he says. He adds that large technology companies, including chip-making giant Intel, are becoming interested in the commercial potential of digital devices for senior citizens.

Not all of the residential monitors for the elderly are test-bed prototypes, however. Residents of Oatfield Estates in Portland, Oregon, now wear badges that send activity data via infrared or radio-frequency signals to detectors installed in walls and ceilings. The information then travels to a central computer, where staff members can track the location and movement of each resident throughout the day. Other sensors record each person's weight when they lie in bed, or use infrared instruments to take vital signs, such as temperature and blood pressure.

The badges are off-the-shelf security devices. Oatfield's four-person software-development staff wrote custom assisted-living programs. The data collected about residents are archived in a central

Digital Architect

computer, and Oatfield is now considering giving each of its staff members handheld organizers that would allow them to view residents' data remotely.

Sound design

Unlike Oatfield Estates, the Ryan School project is still in its start-up phase. Although monitoring systems will be an important element in helping its residents live independently, C.E.O. Walker says, "Technology can't do it all." The facility will have a residential manager on-site, and a nurse will make routine visits each week to assess blood-pressure and blood-sugar levels of residents.

The renovation of the Ryan School will save the building's outside structure as well as its interior support walls. Former classrooms will become apartments ranging from 350-square-foot studios to 1,400-square-foot, two-bedroom units. Perhaps the biggest reminder that this used to be a high school will be the spacious hallways, which will remain 9 feet wide. Architects consulting for the project say the underlying monitoring technologies will cause few problems in terms of design and construction, except for one area: the web of wiring needed to connect the scores of sensors with computers. Solutions to this problem, including the use of wireless networks, is a research priority in university test beds.

The monitoring system's sensors, wiring, hardware, and software will add about $2,500 to the cost of a one-bedroom apartment, Kessler estimates. If similar monitoring systems become commonplace in assisted-care facilities, the added cost could drop to $1,000 or less, he believes.

In a nod to privacy, each resident will have the choice to "opt out" of monitoring, says JABA's Walker. "We'll wire each of the apartments, but if anyone feels it's too intrusive, we'll shut it off," he says. Focus groups show that some prospective residents are leery about being monitored, especially because most don't use any digital devices. "At first, they ask, 'Will this be like having a bunch of Peeping Toms?' " Walker says. "But the more we describe this as a supplement to their care, the greater confidence they have." He adds that the system appeals to family members who seek assurances that an elderly relative will quickly receive care in an emergency.

Aside from Big Brother fears, developers of elder-monitoring systems grapple with another problem—information overload. How can anyone make sense of the data when the tiniest details of every individual within an apartment complex are recorded 24 hours a day? MARC's Alwan says his group is attacking the problem by devising analysis programs that use data-mining and pattern-recognition techniques pioneered by corporations and the military to spot trends and glean meaning from mounds of statistics. "Our intention is for the system to do the analyses and give the results to caregivers," he says.

More than bingo

Walker hopes that if the Ryan Schoc project succeeds, ubiquitous-monitoring technologies will eventually defer nursing-home admissions for millions of aging Americans whose physical and mental health allow them some degree of independence. Although there is no guarantee that around-the-clock monitoring will ever be accepted as the norm, one thing is clear—architects are looking for new models that help them address the graying of baby boomers. "It's not enough to just have bingo and grab bars anymore," Kessler says about housing for the elderly. The question is, does installing dozens of "senior cams" throughout a building cross the line from not enough to too much? ■



recast Group Expands Its Resources

ctober 2001, The Cretex Companies, dded PBM Concrete, Inc., Rochelle, s, and Raider Precast Concrete, Inc., Burlington, Iowa, to its Construction cts Group. Prior to the acquisition of and Raider, the Construction Products consisted of two independently run st/prestressed companies: Iowa essed Concrete, Inc., Des Moines, and J.W. Peters & Sons, Inc., gton, Wisconsin.

mbined companies make up one of the st's leading producers of structural architectural precast/prestressed te for parking structures, office ngs, stadiums, industrial wall panels, itial structures and bridge beams.

pleased to have added such spected organizations to the Cretex of companies," said John Nanna, nt of the Construction Products "Our latest acquisitions strengthen mpany's ability to serve existing ers, while allowing us to expand our offering and operations throughout lwest."

Group Offers Benefits

onstruction Products Group now ustomers throughout Iowa, Missouri, sin, Illinois and Indiana. The group its expanded geographic reach will both new and existing customers by ng access to the collective talent, nce and innovation of its individual ies – all at a combined lower cost.

tion, now that the group consists closely linked manufacturing plants e states, it stands ready to virtually any sized project. The al companies within the group work together as a single unit to tomers an expanded array of services bilities.

ompany in the group serves as a -shop for its customers, offering ruction services, manufacturing, and erection," Nanna said. "Anytime g such a well-rounded group of es together, its customers ultimately from increased efficiencies, larger uring capacity and shared services."

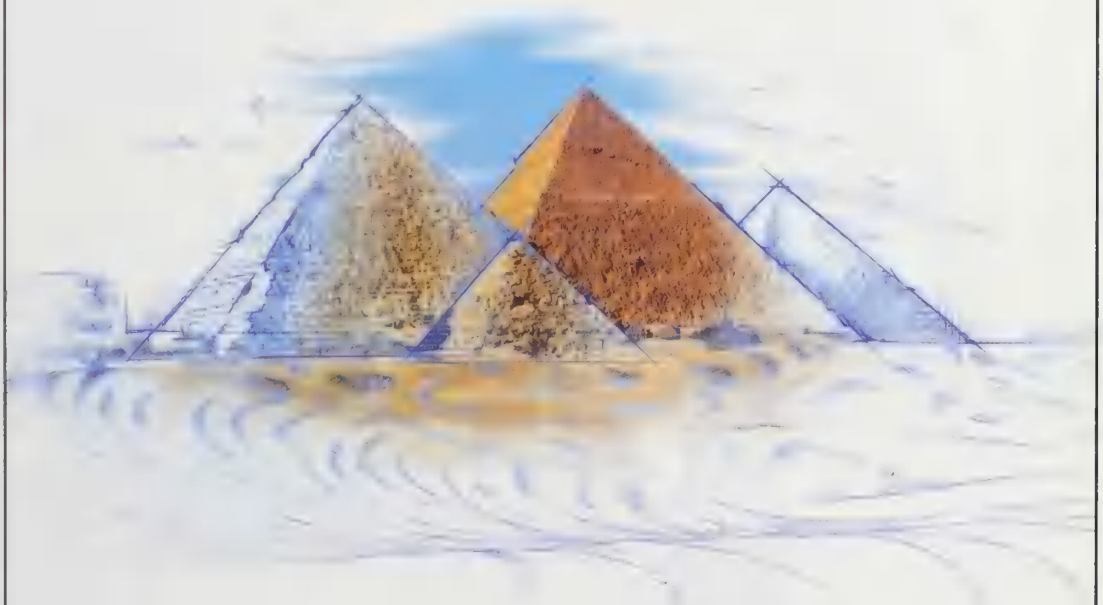
A Partner for Building Structures

Getting involved in projects during their initial stages is central to the Construction Products Group's new philosophy. Accordingly, Nanna stresses the importance of the group's extensive preconstruction services.

"Building a quality structure takes more than materials and manpower. It takes serious planning, relevant experience and a dedicated partner from day one," he said. "With our preconstruction services, we sit down with clients well before any manufacturing or erection takes place to review their budget, discuss their schedule and present several design options. This dramatically minimizes any budget issues and allows for shorter construction time."

To learn more about partnering with the Cretex Construction Products Group for your next structure, call 1-800-877-9040. Additional information about the group and its individual companies can also be obtained on the Internet at www.cretexinc.com.

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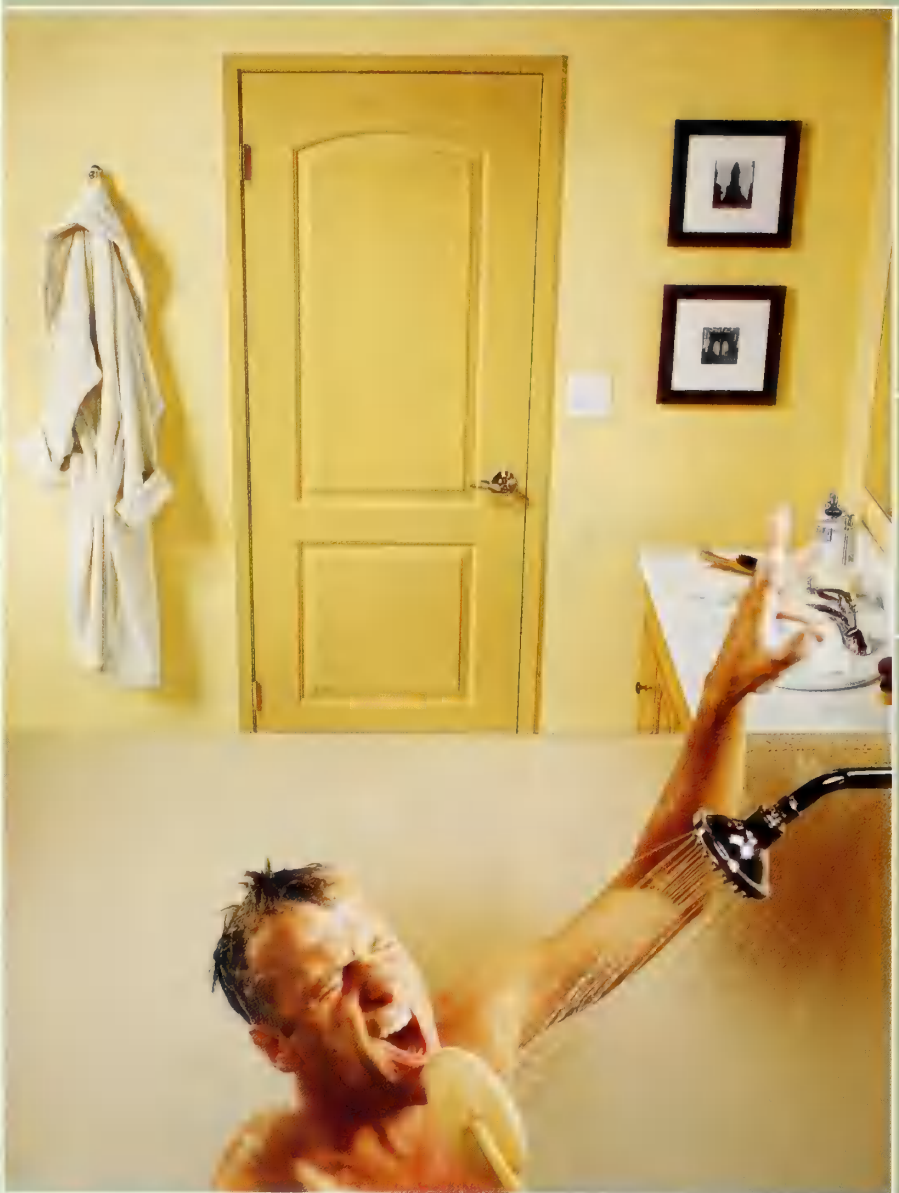
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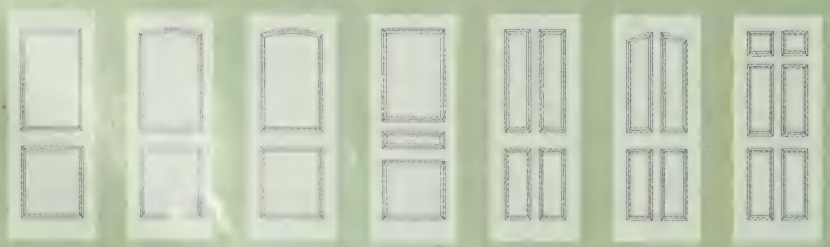
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Want Drama? Need Solutions? Think Doors!

Sustainability, sound control, energy efficiency, code compliance—areas to consider when selecting an entryway.

FSC Rated Entry Door

he following article is intended to give architects and specifiers a better understanding of the technology through which door manufacturers are dressing sustainability, sound control, energy efficiency and code compliance. istinctive entry system increases "curb appeal"—and ultimately the value—of a home degree that no other single building element can match. Doors today are more rgy-efficient, code-specific and resistant to weather than they were just a few years . For example, newly designed construction methods such as triple-laminated, veneer-lumber stiles for moisture resistance and stability allow manufacturers to produce beveled mirror showcase doors.

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e the learning objectives below to focus your dy as you read Want Drama? Need lutions? **Think Doors!** To earn e AIA/CES Learning Unit including one hour of lth safety welfare credit, answer the questions page 169, then follow the reporting instructions page 214 or use the Continuing Education orting form located at *architecturalrecord.com*.

arning Objectives

- Understand how sustainability relates to pecifying doors
- earn how "green" materials are nanufactured and meeting code compliance
- Choose the appropriate door for varying xposure conditions
- Glimpse new manufacturing innovations hat offer solutions to age-old problems
- ook briefly at tomorrow's doors: sound-roof, self-cleaning, indestructible
- earn how to select energy-efficient indows, doors and patio doors

When It Comes to Sustainability and Code Compliance, Door Manufacturers Are Ahead of the Game

Driven by code changes, shifts in customer preference, and a growing drive toward sustainable building, U.S. door manufacturers are altering products and, perhaps more importantly, practices. And those manufacturers whose products already use sustainable components are standing up to be recognized. The following section examines the availability of "green" materials and the processes by which they are created.

The trend in revision of energy codes in nearly every state is toward incorporation of building energy performance into the code. A growing dedication to conservation has driven the nation's utilities to add green power to portfolios and forward-thinking public agencies to demand green in both construction practice and materials purchase.

A new generation of impact-resistant glass is becoming a common code requirement in coastal communities across the South and the Atlantic Coast. In 1992, Hurricane Andrew was more than a disaster; it was a wake-up call for safety officials and local building inspectors.

Choosing an appropriate entry door requires more than just specifying one that looks pleasing, especially when building in extreme environments. Choosing the right entry door can be a challenge; the options vary from wood, fiberglass or steel to exterior molded doors.

Many homeowners and building professionals prefer the look of wood doors, but often a home's architecture, site orientation or the region's climate increases the maintenance of a wood door.

"Most homeowners want a genuine wood entry door. It is, after all, what the other alternative materials are trying to emulate," says one West Coast door manufacturer product marketing manager. "Real wood offers natural beauty and design flexibility," but in certain climates, architectural openings can increase the maintenance of wood entry systems.

One has only to look to the City of Seattle's building program to realize how far the issues of energy performance, sustainability, and product exposure to damp climates have evolved.

The city currently has under construction 13 city-owned projects totaling 2.75 million sq ft of space—all being built under Leadership in Energy and Environmental Design program guidelines. The LEED program was developed by the U.S. Green Building Council (USGBC), whose membership now includes nearly 600 architectural firms across the country. General LEED membership includes over 1,500 government agencies, institutions, design professionals, builders, and others.

The 363,000-sq-ft Rem Koolhaas-designed Seattle Central Library, being built by Portland-based Hoffman Construction, will contain a minimum of 50% recycled content. To lessen the energy impact of transporting materials, 20% of its new material must come from local sources (within 500 miles).

The city's new city hall and justice center, a performing arts center and a new 275-million-gallon-per-day water treatment plant all are being built under LEED guidelines with stringent green requirements for doors, windows, wainscoting, and even office equipment.

Half the central library's wood products, including temporary material used for framework, must be from sources certified by the Forest Stewardship Council (FSC), a third-party system for certifying forest products as having come from well-managed forests.

The FSC is an independent, international, non-profit organization representing environmental, business and social interests whose intent is to support timber production on a sustained, ecologically sensitive basis and to ensure that forestry practices contribute to social stability in timber-dependent communities.

Certain U.S. door manufacturers are responding to the conservation call with product lines "certified" to address not only the direct issue of sustainability, but also environmental and social concerns surrounding timber harvest worldwide.

"We are finding that a lot of larger cities are now adopting the same kinds of requirements, and we are providing products that accommodate that demand," says the product-marketing manager for a West Coast door manufacturer.

Specifying sustainable forest products is often a confusing process. The Certified Forest Products Council (CFPC), a North American market development organization assisting the FSC industry, offers the following suggestions to architects and specifiers in writing specifications for certified forest products. (A comprehensive "Project Toolkit" is available online in the Specification section of www.certifiedwood.org, the CFPC website):

- Engage certified suppliers early in the design process to ensure that certified forest products are available and project-appropriate. Providing bidders with a resource list will help assure that the specifications are fulfilled.
- Successful projects generally employ a line-item strategy. Sample specification language is available at www.certifiedwood.org.



Molded Wood Fiber Door

- Certified supply is limited and all products may not be available in all markets. Bidding alternatives is prudent. Specify certified products in the primary bid and non-certified materials as alternatives. The strategy typically produces more competitive pricing and requires due diligence to submit a responsive bid. In some cases, sole-source specifications must be written.
- Use of bid compliance forms (available in the "Project Toolkit")in each sub-section will help assure due diligence by bidders.
- Conduct a thorough project documentation for LEED projects.

Although certified product lines are expanding, specifiers may find that certified products are not available from a contractor's normal suppliers. As a result, costs may be higher than expected and lead times may be longer than usual.

It is, therefore, prudent to check availability of certified products early in the design. CFPC maintains intelligence on the FSC industry in North America and has a regular program in place to assist design professionals. They can be reached at 503-224-2205.

FSC door manufacturers, who have become increasingly reliant upon hybrid materials for door assembly, have turned to plantation-grown poplar, for example, and many are now growing their own forests in order to comply with certification requirements. "There is not as much material available as we would like," says a West Coast manufacturer. "We have our own (FSC-certified) poplar plantation. But we also buy from Malaysia and South America."

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Molded Wood Fiber Doors

Molded wood fiber doors are a smart choice due to their SCS (Scientific Certification Systems) rating, affordable price, and wide range of options and styles.

In the manufacture of molded facings, various Ponderosa pine and poplar sawmill waste is reduced to wood chips, then screened for size uniformity. The chips are softened with steam in a digester and further reduced to wood fibers in a disc refiner.

They are then blown through a dryer. The wood fibers are mixed with resin and wax and metered out in a continuous mat of uniform thickness and density. The continuous mat is cut into individual sheets and loaded into a hot press where they are compressed under intense heat and pressure.

After pressing, individual door facings are trimmed to size, humidified, primed, and stretch-wrapped (to protect from humidity). A door facing comes out of the process with a low moisture content. It is critical that moisture be reintroduced to the door facing so that its moisture content is as close as possible to the environment where it will be used. Door manufacturers pay particular attention to such detail in markets where weather can be an issue.

Solid Core Doors: Sound Reduction

Molded wood fiber doors are offered with engineered cores of various materials that not only incorporate materials grown on a sustainable basis, but which result in lower sound transmission and ease of maintenance while duplicating to an extraordinary degree the look of classical wood doors.

Below are the STC ratings for hollow core and solid core doors:

6-panel door	1 3/8" x 36" x 80"	Hollow core	**STC 26**
6-panel door	1 3/8" x 36" x 80"	Solid particle board core	**STC 31**
6-panel door with 90-minute fire rating	1 3/4" x 36" x 80"	Solid mineral core	**STC 30**
6-panel door with 20-minute fire rating	1 3/4" x 36" x 80"	Solid particle board core	**STC 31**
6-panel door with 20-minute fire rating	1 3/4" x 36" x 80"	Solid particle board core	**STC 31**

Solid core doors are on average 50% quieter than hollow core doors. The higher the STC rating, the less sound travels through the door. Solid cores are also necessary for fire-rating.



Particle Board & Mineral Core Doors

Energy-Efficient Doors

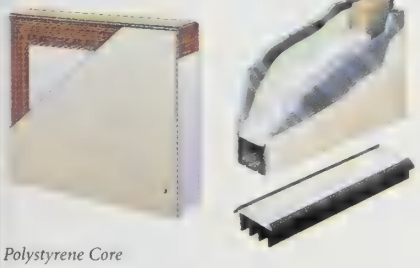
California, as part of its energy conservation reforms, now requires a National Fenestration Rating Council (NFRC) certification for all doors and windows, and other states are expected to follow suit.

The NFRC procedure takes into account whole-product performance, allowing builders and architects to directly compare products with different construction details and attributes. This prevents information about a single door component, such as its core material, from being compared in a misleading way to the actual performance of the entire door product.

Using this method, a comparison of the U-value results for brands published in the NFRC Certified Products Directory, reveals a negligible variance of less than .03 (equivalent to an R-value of 1.12). U-values for the most efficient steel-faced doors range from .18 to .15 (equivalent to R-values of 5.55 to 6.67). Architects, manufacturers say, typically—and mistakenly—rely upon R-values in specifying doors and windows. U-value is the actual measurement of heat flow. Some door manufacturers, capitalizing on the confusion, claim an R-15 rating for some exterior door products. "It is impossible for a door to achieve that kind of rating," says one manufacturer.

Many states are adopting the International Energy Conservation Code as part of their statewide building code. The move demands doors meet specific U-factors, which resist solar heat gain. Exterior molded doors respond well to both requirements.

Some manufacturers have turned to polystyrene as a replacement to polyurethane cores to create a product that delivers an R-value that not only exceeds current energy codes, but also has other important characteristics: "Polyurethane, over a period of as little as three years, will, because of off-gassing, lose a portion of its thermal resistance," says one manufacturer. "At that point, they will also begin to absorb some moisture, causing the door to rust from the inside out, especially in wet, coastal environments."



Polystyrene Core

One-piece polystyrene cores provide a custom fit, eliminate core voids, deliver long-lasting insulation and are excellent for residential passageways such as utility rooms and garages that require a 20-minute fire rating.

Steel-edge doors also are available with a 90-minute fire-rating for use in multi-family buildings, offices and light commercial applications, and are manufactured with a continuous edge that resists moisture infiltration, increases thermal resistance and offers increased safety and durability.

Self-Cleaning Glass Is Now a Component

Two distinctly different self-cleaning glasses have been developed. One type is designed to reduce particles' ability to adhere to the glass and the other type is a chemical coating that breaks down particles if they come in contact with the glass.

To inhibit adherence of dust particles or other grime on the glass surface, one manufacturer has reduced the porosity of the surface. There are no chemicals involved and should be as effective one year as the next. If minute amounts of particles do adhere to the surface, they are easily cleaned with a quick spray of water.

The other innovations in exterior glazing materials is a coated glass with both photocatalytic and hydrophilic properties that, in combination, result in exterior glazing that is easier to clean.

A durable, transparent coating of titanium oxide is applied during the manufacturing process, resulting in a glass whose UV transmittance is reduced



Custom Wood Windows

by about 40%, but whose outward appearance is actually slightly brighter than ordinary glass. The solar heat gain coefficient of the first generation of self-cleaning glass is improved about 0.05 over ordinary, un-coated glass.

The photocatalytic properties of self-cleaning coatings are energized by UV rays to help slowly break down and loosen organic dirt. Hydrophilic properties cause water to sheet evenly over the glass surface, instead of beading. The sheeting action helps to flush the surface clean and to accelerate drying, leaving glass with minimal spotting and streaking.

Self-cleaning glass now is available in standard and energy-saving low-E windows.

Impact Resistance Also Part of New Code Compliance

The new impact-resistant glass, developed specifically for the Southeast—that region of the U.S. most vulnerable to hurricanes—has recently become, or soon will become, a dictate of local codes in coastal regions from Texas to Virginia. Manufacturers are finding architects specifying it in Kansas and Iowa to help combat tornado disasters. It is also finding markets elsewhere because of its acoustical and UV-resistant properties.

"This is the next big market," says a manufacturer. "Code changes are under consideration in coastal cities in several states, and it is likely we will see this glass become a code standard within a prescribed distance of the shoreline everywhere."

Impact-resistant glass is, in most cases today, a laminated five-layer sandwich of glass, resin and mylar. Resin applied to the interior surface of two pressed sheets of float glass strengthens when cooled and hardens like safety glass. A sandwiched sheet of mylar prevents the glass from shattering. It acts to ensure that nothing penetrates the fenestration of a building. Upon impact, glass pieces adhere to the plastic inner layer, remain in the opening and preserve the building envelope.

Hurricane-force winds create tremendous pressures on a building. A 140-mph wind generating 80 pound per-sq-ft (psf) of wind load on a 4-X-8-ft window translates into a total load of 2,560 pounds of pressure on doors and windows. When glazed openings fail, the same pressure inside the building is almost immediate, causing tremendous lift on the roof.

To insure impact resistance, Dade County (Fla.) developed the now widely used test in which a nine-pound two-by-four is fired from an air cannon at a speed

of 34 mph to simulate the force of a piece of flying debris in a hurricane.

The State of Florida has segregated the state into several wind zones. Peak winds in immediate coastal areas are on the order of 150 mph, and doors and windows must be designed to withstand a three-second gust. The new Florida code is derived from ASCE 7-98. "Anybody with a new code book will see references to those codes," says a manufacturer's representative, "and each individual door line must be certified. That takes considerable testing, research and development to develop products that comply."

The tests requires three identical product prototypes, and at least two must pass the exam. All parts of the test specimen, including glazing and structural framing, must be full-size, using the same materials, glass type, details and methods of construction and fastening as proposed for actual use. The test specimen must consist of the manufacturer's entire assembled door or window unit.

Other tests are administered in other regions. Other tests administered in the U.S. are based upon Design Pressure (DP) ratings. These refer to the Air and Water structural ratings of a door or window based on positive and negative pressures, measured in pounds of pressure per sq ft. Minimum requirements vary from region to region. For some states, the required DP rating is as low as +15 to -15 DP. Parts of the Oregon coast require +30 to -30 DP. In Florida, due to the new 2001 building codes, DP ratings have increased an average of up to 20%.



Fiberglass Door

Doors and windows are actually tested at 1.5 times the required DP to allow for a safety factor. When they have passed, windows are labeled with the appropriate DP rating.

Make sure you look!

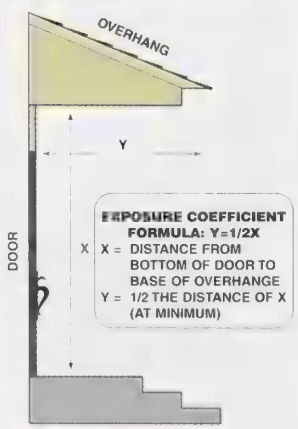
Appropriate Exposure: Building for Any Extreme

Alternative materials provide options. Consider quality steel, fiberglass or molded wood fiber doors. Careful selection of the entrance system makes life easier for contractors and homeowners while still providing architects the desired appearance. Careful selection ensures long-term performance and homeowner satisfaction.

The placement of a wood door is a major factor in its maintenance and longevity. To adequately protect a wooden door and extend its life, factoring must be done. Take into account the climate, as well as the direction the door will be facing. From there, you have to determine the amount of overhang and the height of the entrance in relation to the base of the door. There are some situations where the exposure can be too extreme for a wood door, so to address this need, composite doors are now being manufactured as specialty lines specifically designed to withstand even the harshest of elements in the most extreme conditions.

The Exposure Coefficient

To help you figure out the correct overhang required for your door, there's a simple formula to follow: $Y=1/2X$ in most cases. So for example, if the measurement from the base of the door to the bottom of the overhang is ten feet, then the overhang should be a minimum of five feet deep. The following illustration and chart should help in factoring the appropriate exposure for the door.



Other Variables

Take into account the variables specific to a region. Consult the chart below, and adjust the exposure coefficient formula accordingly.

CLIMATE	DIRECTION THE DOOR FACES			
	NORTH	SOUTH	EAST	WEST
DESERT	Y=1/2X	Y=2X	Y=1/2X	Y=2X
OCEAN	Y=1/2X	Y=X	Y=1/2X	Y=X
WET	Y=X	Y=X	Y=X	Y=X
MILD	Y=1/2X	Y=X	Y=1/2X	Y=X

Without correct overhangs, hardwood doors with a South, Southwest, Southeast or West exposure will require maintenance. With the proper overhangs, hardwood doors may face any direction (north, south, east or west). Doors installed in these types of applications still require finish maintenance. They may need to be refinished every two to five years.

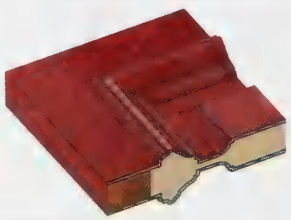
A consideration in the use of steel-faced exterior doors is whether or not a storm door will be used in concert with the door. The doors will work fine in winter, but heat build-up between the doors in summer can cause distortion of the steel surfaces, and oil-canning or warping can occur because steel expands with heat.

Because the degree of absorption of ultraviolet rays varies according to color, it is critical that designers be aware that painted doors dark in color can be severely affected by heat. In 110-degree ambient heat, the temperature of a white door will gain 10 to 15 degrees; a dark brown or forest green door of the same material, 70 degrees.

Beauty, durability and innovation are the hallmarks of fiberglass doors, which by new manufacturing processes remarkably resemble classical hardwood doors. The result: beautiful doors specifically engineered to withstand harsh elements. To create these maintenance-free doors, molds are created from true hardwood doors, which give the fiberglass product a grain structure indistinguishable from hardwood.

Fiberglass skins are created by multiple layers of tinted resins, base colors and reinforcing materials. The skins are then removed from the molds and permanently bonded to engineered-wood frames edged in hardwood. To create a solid feel to the doors, a specially formulated core material is used which laminates to the skins. The core material becomes an integral part of the door. The result is a denser, more solid feel resembling the weight of a solid hardwood door.

The surface of the door is then finished with a multi-layer prefinishing system beginning with a specially formulated grain filler, and a UV-protective stain coat is then added. The door is encapsulated in a final protective topcoat originally designed for use in the aerospace industry for equipment exposed to extreme environments. The end result is a door that can withstand sun, rain, coastal salt spray, and extreme temperatures. ■



Fiberglass Door

Click for Additional Online Reading

As part of this learning activity, you are required to read the following additional material:

How to Select an Energy-Efficient Window:

To access the materials online go to www.efficientwindows.org/benefits.html

A Short Course on Energy-Efficient Windows and Patio Doors:

To access the material online go to www.drpane.com/windows101.html

To request a faxed copy of the online material, contact lindamo@jeld-wen.com

Additional Resources (non-required):

Websites Containing Building and Energy Code Updates:

To access the materials online go to www.jeld-wenresearch.com and www.bcap-energy.org

Want Drama? Need Solutions? **Think Doors!**

Learning Objectives

- Understand how sustainability relates to specifying doors
- Learn how "green" materials are manufactured and meeting code compliance
- Choose the appropriate door for varying exposure conditions
- Glimpse new manufacturing innovations that offer solutions to age-old problems
- Look briefly at tomorrow's doors: sound-proof, self-cleaning, indestructible
- Learn how to select energy-efficient windows, doors and patio doors

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 214. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record*'s website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. True or False: According to the Forest Stewardship Council (FSC), the supply of certified wood is abundant and availability should not affect lead time.
A: a. True
b. False

Q: 2. The benefits of the engineered cores of molded wood fiber doors includes all but which of the following:
A: a. Materials grown on a sustainable basis
b. Manufactured with a high moisture content
c. Lower sound transmission
d. Replicating the look of classical hardwood doors

Q: 3. Which is the correct measurement of heat flow to consider when specifying doors and windows:
A: a. R-Values
b. U-Values

Q: 4. Some manufacturers have turned to polystyrene as a replacement to polyurethane cores because polyurethane over time:
A: a. Provides a 90-minute fire rating
b. Loses a portion of its thermal resistance
c. Eliminates core voids
d. Resists moisture infiltration

Q: 5. It is the photocatalytic properties of the self-cleaning glazing that:
A: a. Causes water to sheet evenly over the glass instead of beading
b. Reduces the UV transmittance by about 40%
c. Breaks down and loosens organic dirt

Q: 6. Impact-resistant glass is, in most cases today, a laminated five-layer sandwich that includes all but which of the following:
A: a. Titanium oxide
b. Glass
c. Resin
d. Mylar

Q: 7. In most cases, the simple formula to help figure out the correct overhang required for a door is:
A: a. Y = X
b. Y = $^1/_2$X
c. Y = 2X

Q: 8. According to the Efficient Windows Collaborative, four steps are needed to select energy-efficient window: 1) look for Energy Star-qualified products, 2) look for energy-efficient window properties on the NFRC label, 3) Compare annual energy costs for a typical house and 4) customize energy use calculations for a specific house.
A: a. True
b. False

Q: 9. A good U-Factor to look for is:
A: a. 0.15 or lower
b. 0.35 or lower
c. 0.50 or lower

Q: 10. The Visible Transmittance (VT) number a window or patio door has is a direct percentage of available light coming through: the higher the number, the more light. A good percentage is about?
A: a. 45%
b. 70%
c. 55%

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RESIDENTIAL

A waterfront home is a cherished refuge in uncertain times

Statistics tell us that in this generally cool and uncertain economy, vacation homes are selling at a hearty pace. This may not surprise you, given the security of investing in real estate compared to the current high level of uncertainty in the stock market. Also, since September 11 a nesting instinct has been evident, with families more often choosing to vacation on land within commuting distance rather than seeking high adventure abroad. Foremost within the category of vacation homes is the highly desirable house by the water—a luxury many of us can only dream of.

Water comes in many forms, as do the homes that derive much of their character and beauty from their relationship to it. The Ocean Beach House sits at the Pacific edge of our continent, mitigating a foggy nautical boundary between humanity and the changing sea. Altogether different is the Van Sweden House, which floats in a marsh at the brink of Chesapeake Bay, a tamer, gentler waterway. These contrast with the Bohlin residence, a country compound of restored small buildings assembled around the tranquil focus of a man-made pond, which organizes the disparate elements of the complex. The summer cabin in southern Norway is built on the site of a 1950s fisherman's hut. Designed to appear like the wooden-hulled boats of the area, it hovers lightly above the grassy ground at the edge of a fjord. While these houses are all modest in size and scope, they convey an aura of opulence. Who but the luckiest among us can have the midsummer night's dream of a house by the water? *Jane F. Kolleeny*

RESIDENTIAL BRIEFS

"The economy is on the road to recovery," said David Seiders, V.P. and chief economist for the National Association of Home Builders (NAHB) and moderator of their recent Construction Forecast Conference in Washington, D.C. He cautioned: "Residential construction hasn't crashed the way nonresidential has, but there are a lot of potholes on the road to recovery."

A prototype house of the future is on display at Microsoft's Redmond, Washington, headquarters featuring technology five to eight years away. An iris scanner enables residents to enter; a computer sets the lights, blinds, temperature, music, and TV on command; a soothing automated voice recites a recipe as one cooks in the kitchen; telephone and e-mail messages can be retrieved, read, or heard aloud through control panels, TVs, and PCs placed throughout the house.

Windshield, Richard Neutra's famous beach house, is the subject of a new exhibition at the National Building Museum, Washington, D.C., through August 18 (202/272-2448). It will be at the Carnegie Museum of Art, in Pittsburgh, March 1 through May 25, 2003 (412/622-3131).

Information released by the Census Bureau in June shows that commuting times are increasing across the country, with more people spending longer hours driving their cars. Yet, a new study from the National Resources Defense Council offers empirical evidence that smart growth works. People who live in intelligently located communities are less dependent on cars, and their communities have better air, cleaner water, and more protected open space.

CONTENTS

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Sorg Associates
193 **Kitchen & Bath Portfolio**
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The American Institute of Architects Announces the 2002 Housing Professional Interest Area (PIA) Award Winners

SINGLE-FAMILY HOUSING





Project: *Newman Residence*
Location: *New York City*
Architect: *Cooper, Robertson & Partners*
Client: *Scott Newman*

An adaptive reuse of a small 19th-century commercial building in New York City. "The architect showed discernment in the basic geometry of the building and used historic elements to create a very elegant reconstruction."

INNOVATION IN HOUSING DESIGN





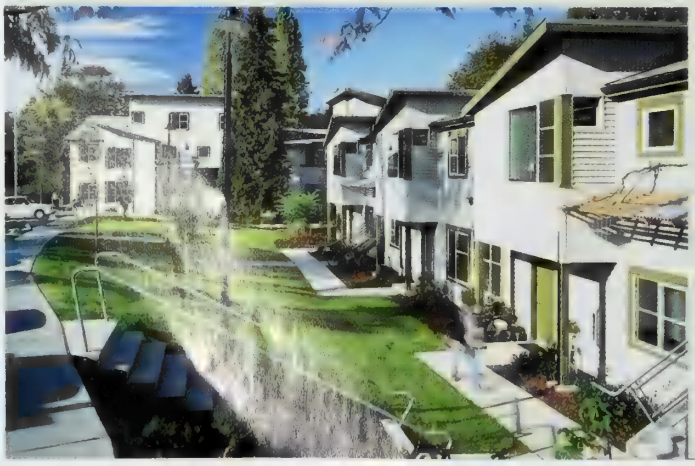
Project: *House at Santa Barbara*
Location: *Montecito, Calif.*
Architect: *Barton Myers Associates*
Client: *Victoria Myers*

Located in a secluded mountain canyon in California with panoramic views of the ocean, the Channel Islands, and mountain peaks, one juror called it "a seamless insertion in the landscape similar to a steel tent."

MULTIFAMILY HOUSING

Project: *Radford Court Apartments*
Location: *Seattle*
Architect: *Mithun*
Client: *Lorig Associates*

This 400-unit, affordable student-housing development sited on a steep hillside replaced unsightly, dilapidated housing. One juror appreciated "the colors, shapes, materials, and modest, cozy scale."



Project: *Victoria Townhomes*
Location: *Seattle*
Architect: *Mithun*
Client: *Lorig Associates*

Here the architect rehabilitated a turn-of-the-last-century apartment building with evident sensitivity to the historic neighborhood. "This well-modulated and comfortable urban infill, with its whimsical, steeply pitched roofs, makes great use of materials and color."



The single most important message the AIA Housing PIA delivers through its annual awards program is that good design matters. This is true whether a project is an upscale urban infill or subsidized, low-income housing. This year, there were eight winners among 66 submissions in four design categories. The jury rewarded projects that succeeded in resolving issues of scale, definition of public and private spaces, best use of materials, and responsiveness to design intent in housing proposals. According to Diane Georgopulos of the Massachusetts Housing Finance Agency, who chaired the jury, "What we must not fail to appreciate is the significant role housing plays in simply setting the stage for the dialogue between what we need to live and how we'd like to see ourselves living."

COMMUNITY DESIGN





Project: *Howard University, LeDroit Park Revitalization Initiative*
Location: *Washington, D.C.*
Architect: *Sorg and Associates*
Client: *Howard University/Fannie Mae Corporation*

Restoring the historic fabric of this neglected inner-city neighborhood was accomplished with such finesse that one juror described it as "a rebirth out of death, accomplished far above the rare."







Project: *WaterColor*
Location: *WaterColor, Fla.*
Architect: *Cooper, Robertson & Partners; Associate Architect: Looney Ricks Kiss*
Client: *Arvida (The St. Joe Company)*

This planned development demonstrates the virtues of the new urbanism. "A fully integrated community; very elegant and well thought-out."

ct: *Park West*
ominiums
ion: *Charlotte, N.C.*
ect: *David Furman*
tecture
: *The Boulevard*
any

ng sited near a major
c corridor that offers a
d aesthetic with wood
g, unique window shapes,
and canopies. "Anything



but your typical garden apartment. The jury liked the privacy, exterior places, parking, and scale of the unit plans."





Project: *Johnson Street Townhomes*
Location: *Portland, Ore.*
Architect: *Mithun*
Client: *Hoyt Street Properties*

An urban brownfield, a former railroad switching yard in a historic warehouse quarter north of downtown, is the location of this "wholly original design—a great platform from which to watch the world."



PHOTOGRAPHY: © TOP ROW, NEWMAN RESIDENCE (SCOTT NEWMAN, LEFT, BRET MORGAN, RIGHT); HOUSE AT SANTA BARBARA (GRANT MUDFORD); HOWARD UNIVERSITY (HOACHLANDER DAVIS PHOTOGRAPHY); WATERCOLOR (ARVIDA, TOP, PAUL MILANA, BOTTOM); BOTTOM ROW, RADFORD (WWW.DOUGSCOTT.COM); VICTORIA (ROBERT PISANO); PARK WEST (TIM BUCHMAN); JOHNSON STREET (ECKERT & ECKERT)













A large pond anchors **Peter Bohlin**'s rustic country ensemble of enchanting indoor and outdoor spaces

By Raul A. Barreneche

Peter and Sally Bohlin's small family compound near Scranton, Pennsylvania, boasts a bit of the mountain—or, in this case, the water—coming to Mohammed. This is because the large pond that extends through the rural site is artificial, constructed by Bohlin, the principal of Bohlin Cywinski Jackson, for the reason that it "seemed like an obvious thing to do," he says, given the site's tendency toward muddiness. But the pond is much more than an exercise in civil engineering; it's a believably natural landscape that organizes the compound's disparate elements, gives a tranquil focus to the rural retreat, and imparts some unexpected magic to every corner of the property.

Sally Bohlin originally owned the main house. Two years ago, she and Peter purchased the modest shingled house next door—built in the 1840s by a runaway slave protected by the Underground Railroad—for use as a guesthouse. As often happens, the purchase snowballed into a much larger construction project.

Raul A. Barreneche, a New York–based architecture writer and critic, is a contributing editor to Metropolitan Home *and* Travel + Leisure *and has written for* Dwell, I.D., Wallpaper, Interior Design, *and* The New York Times, *among others. He is coauthor of* House: American Houses for the New Century *(Universe, 2001).*

Soon, the Bohlins were renovating the guesthouse and their own house, building the artificial pond, and developing a broad landscape plan, including the construction of dry-laid walls of local blue stone along the road and deeper inside the property. Last summer, they completed the complex with the addition of a concrete lap pool, a wooden pool house, and a tiny stone well house concealing the aeration equipment for the pond.

Each structure has its own character, but all work together as a serene ensemble that always relates to the pond. To link the main house and guesthouse, Bohlin added a stone walkway between a crushed-stone-covered parking court and the southern edge of the pond. Parallel to the stone walkway, a wooden pergola marches from the house directly into the water, reinforcing the east-west connection between the two structures.

From the outside, the shingled guesthouse appears quite ordinary. But its makeshift, ad hoc structure—built by the escaped slave with flimsy wood-plank walls within timber posts at the corners of the rooms—makes for an unexpectedly tactile interior. (The walls still shudder when the doors are shut, never mind slammed.) Bohlin exposed many of the timber beams and



The Bohlin complex is composed of a main house, a modest shingled house next door, a concrete lap pool, wooden pool house, and tiny stone shed.



The eat-in kitchen in the guesthouse is a decidedly modern space (top). Bohlin exposed many of the timber beams and much of the planking in these guest quarters (right). An elevated fireplace with a hearth of black Vermont slate, walls of wooden bookshelves that seem to float, and a wall of cabinets in the dining room are features of the main house (opposite).





much of the planking, still bearing remnants of pasted-on newspaper insulation, and added crisp planes of drywall to create a contrast of textures. Marble countertops in the kitchen and bath further the tension between rustic and refined surfaces. The eat-in kitchen at the rear of the guesthouse is a decidedly modern space, centered on a floor-to-ceiling picture window facing the pond. Bohlin pulled the north facade several feet forward from the house and extended it another few feet in length at either end, inserting full-height strips of glass between the relocated wall and the original boundary of the house. Through architectural sleight of hand, sunlight bounces against the whitewashed, south-facing wall extensions, through the vertical slots of glass, and into the north-facing kitchen.

In the main house, the architect replaced existing doors and windows, rebuilt a crumbling chimney, and reorganized the flow of rooms and closets to create what sounds like an oxymoron: a modern cottage. Bohlin also designed custom elements that draw on both the modern and the traditional: an elevated fireplace with a hearth of dark gray Vermont slate perched on cantilevered I-beams, walls of painted wood bookshelves that seem to float within the living room, and a freestanding wall of cabinets in the dining room. The airy dining room is itself a new addition at the western end of the house and feels like a big, breezy porch overlooking a newly planted birch grove. At every turn, Bohlin playfully projects interior walls beyond where one would expect them to meet a corner, revealing their planar quality and layered construction.

Bohlin describes the design of his home as a game of adding and subtracting. He invoked architectural memories by distilling traditional cottage detailing and embracing the "rinky-dink" quality of existing elements, creating a modernism that's neither hard-nosed nor sentimental. His architecture bears the strong imprint of Sigurd Lewerentz and Gunnar Asplund's pared-down proto-Modernist country houses, as well as the work of William Wurster, Joseph Esherick, and other California Bay Area pioneers. Beyond its stylistic and philosophical similarities, Bohlin's design evokes the unpretentiousness and wholehearted respect for place embodied by these humanist Modernists. "I think [the house] is an exercise in modest thinking," says Bohlin. "It's sly, not a big deal. And if you made it a big deal, it would be a mistake."

Indeed, Bohlin's country getaway doesn't make a big fuss, but it adds up to an intelligent, profoundly pleasing whole—a place that, as the architect himself might say, just feels right. These days, that is a big deal. ■

Project: *Bohlin Residence*
Location: *Waverly, Pa.*
Owner: *Peter and Sally Bohlin*
Architect: *Bohlin Cywinski Jackson*
Consultants: *Kalinosky Landscaping (landscape architect)*
General contractor: *Ike Vipond Construction (main house); Warren Bragg Construction (guesthouse and pool house)*

Sources
Hardware: *Schlage "Plymouth"*
Interior finishes: *Mountain Lumber (first floor); Vermont Structural Slate Company (master bedroom); Balent Design Marble (kitchen)*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.

The cabin's single gable (above) plays against the inverted form of the butterfly roof over a storage shed (below) at the house's east end. At its west end, a stretched-canvas roof shades a patio (opposite).



Between fjord and forest, architects **Jarmund/Vigsnæs** anchor an arklike summer cabin in Norway

By S.A. Miller

The idea in Norway is to make the coast publicly accessible—always," explains Oslo architect Einar Jarmund, a partner in the 11-person firm of Jarmund/Vigsnæs. "Even if you own land at a beach," he adds, "it's restricted, and it's unlikely that you'll get to build right by the water." But the rare opportunity to erect a house directly on a fjord came to Jarmund/Vigsnæs with the commission to design a small summer cabin on an estate in southern Norway. Here, on a vast tract of land dotted with several buildings, including stables, an extended family from Oslo raises horses and gathers for vacations. The new cabin was commissioned for the owners' daughter, the mother of two young children, and—by a stroke of good fortune—the existence of a 1950s fisherman's hut on the site enabled the architects to build on the coast.

Ideally situated for fishing and boating, the old hut was an unsightly, tall, bright red structure, according to Jarmund. His firm could thus make a strong argument for demolishing it and replacing it with a lower, far more subtle structure—grandfathered by the presence of the earlier building at this location.

"But the site was so incredibly beautiful—like a Nordic summer dream," recalls Jarmund, "that it was difficult to do anything at all." Where the beach meets a great oak forest, however, the architects saw a chance to provide a zone of transition while accentuating the contrast in landscapes. Their solution would be a narrow, relatively open house, offering an experience, from the interior, of two natural conditions simultaneously.

Formal inspiration also came from local wooden-hull boats, as well as a deep-seated fear held by the client and a fond childhood memory treasured by the architects. Because the owners' daughter was terrified of spiders, the architects decided to raise the structure off the ground on blocks—creating a perceived distance between the living areas and the region's (hardly abundant) arachnids. And when Jarmund and his partner, Håkon Vigsnæs, thought back on their own youthful days at the shore, they happily recalled Norway's standardized 1950s ice-cream stands with canted walls, clad in narrow pine panels. Influenced by these old beach stalls, they tilted the cabin's outer walls and sheathed its vertical end planes in "railroad" panels reminiscent of the ice-cream pavilions. For the cabin's exterior side walls, the architects used oiled oak strips with a band of zinc panels at the base.

Inside, the 1,200-square-foot house is organized from east to west, from sleeping through dining and living areas, following the path of the sun. "The sun is so important in Norway, because we have so little of it [most of the year]," says Jarmund. "In Norse myth, hell is a very cold place." The linear three-bedroom cabin spans only one room in width (or occasionally one room plus a corridor), offering an immediate experience of the site's dual character. Light and airy, the interior seems to merge with its spectacular setting—most strikingly in the dining room, where glazed doors, lining the entire north and south walls, open it to cross-ventilation and views of both forest and fjord. An even breezier dining venue can be found at the cabin's west end, where the living area extends into an open-air room: a patio beneath a stretched-canvas roof.

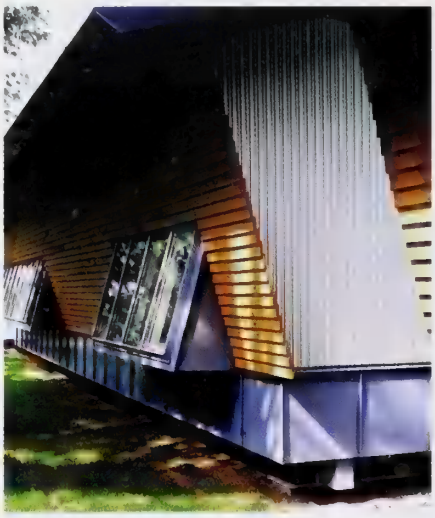


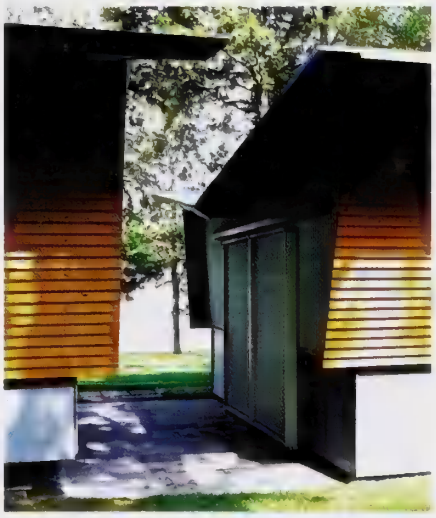


The roof over the interior quarters is a single, zinc-clad gable with a slope perpendicular to the canted walls. Pitched roofs, which shed water effectively, are typical in Norway. In a playful gesture, however, the architects covered the small storage shed, aligned with the building's east end, with an inverted gable, or butterfly roof. Similarly, the house's windows, projecting like saddlebags (albeit prismatic ones), play against the

S.A. Miller is a journalist specializing in architecture and design.

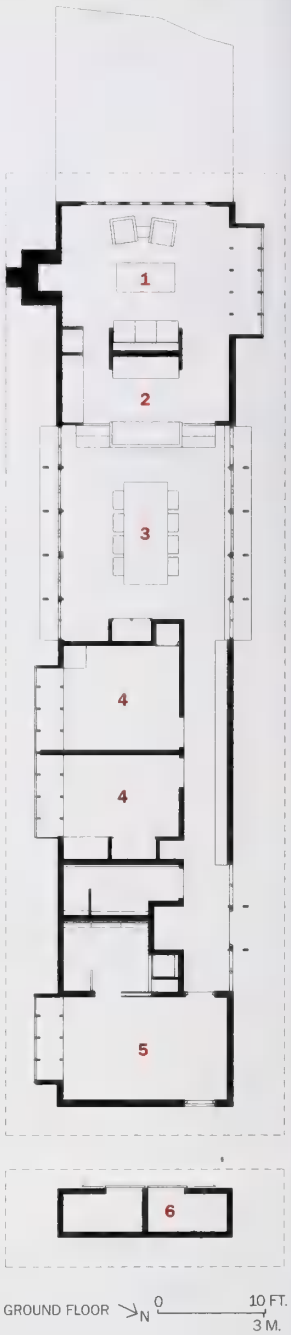
Project: *Summer house on the coast of Norway*
Architects: *Jarmund/Vigsnæs—Einar Jarmund and Håkon Vigsnæs, partners in charge; Alessandra Kosberg, project architect*
Engineer: *Walter Jacobsen*
General contractor: *ABV-Bygsteam*





Windows, made from industrial skylights, project like saddlebags from the cabin's canted walls (far left). The house and storage shed are detached (left).

1. *Living*
2. *Kitchen*
3. *Dining*
4. *Bedroom*
5. *Master bedroom*
6. *Storage*







Hung canvas softens the overhead illumination in the dining room (above). Zinc panels, echoing the cladding on the roof and at the base of the house, surround the fireplace (left).

angled exterior walls. Thin-mullioned, industrial aluminum skylights serve as the tilting side windows—echoing the practicality that underlies much of the house's aesthetic.

Lying low, but hovering gently above the grassy ground plane, the long, slender cabin suits its site remarkably well. The earthy but neutral tones of its richly oiled oak and zinc panels fit with the lush oak forest and calm salty water. Be it a dry-docked ark, a spider-free refuge, or a distant, enlightened cousin of an ice-cream hut, this cabin seems to belong right where it is, "moored" beside a Norwegian fjord. ■

Sources

Zinc cladding: *Rheinzink*
Windows: *Vitral (aluminum)*
Lighting: *Glasshütte Limburg (ambient); Mainlighting (downlights, custom designed by Jarmund/Vigsnæs)*

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The blue-gray and pale yellow horizontal striping of the front facade lightens the demeanor of the building, making it playful.



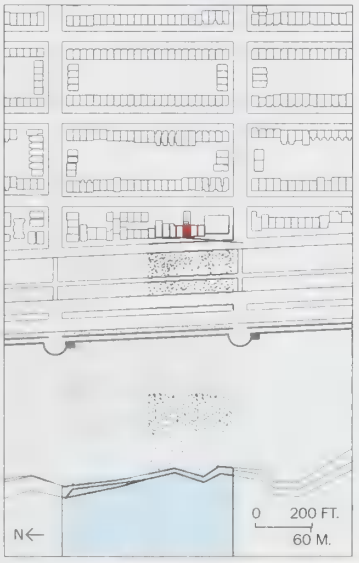
Placed at the edge of the continent, **Nick Noyes'** tranquil seaside cabin responds superbly to light and fog

By Lisa Findley

Blocks and blocks of row houses at the westernmost edge of San Francisco make up the district called the Sunset. The grid of the city, famous for draping right over the hills, ends abruptly where this often fog-enshrouded neighborhood meets the Pacific. At the very edge, shoulder to shoulder with its neighbors and overlooking the windswept beach and the horizon, San Francisco architect Nick Noyes designed a serene house. "This house is on a serious site, right on the edge of the continent and simultaneously on the edge of the Pacific Rim," says Noyes. "Yet, it is also in the 'anything goes' relaxed context of beach living." The project, completed with a modest budget, carefully balances and contrasts these extremes.

The clients, two doctors, one an avid surfer, brought Noyes on board to radically transform a previously undistinguished two-story row house. The architects modified the original first two floors to accommodate a generous entry, garage, study, bedrooms, and bathrooms. The stair winds tightly up through these floors, emerging onto the new, light-filled third floor. Here, a wide span creates an open room the length of the house for all the activities of family life. The front windows allow unobstructed views over the sand dunes and roadway to the beach, surf, and sunset beyond. At the back, windows with almost equally inspiring views of the city open onto an east-facing porch.

The large windows on the east and west ends of the room, combined with a few small windows on the south side and generous skylights above the stair, turn the house into a kind of sundial. While light spills into the room throughout the day, its angle and quality is constantly shifting.



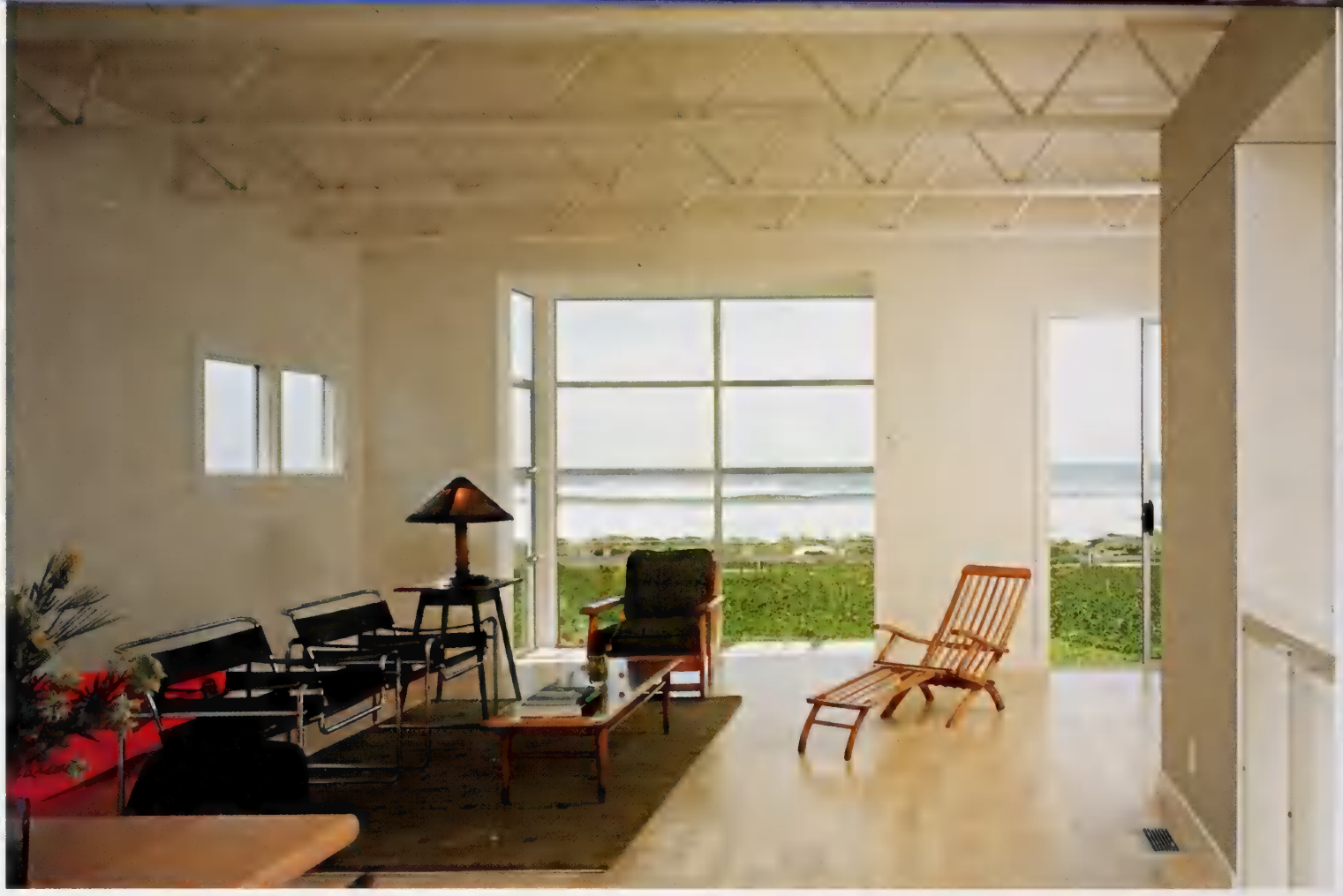
Although clearly rendered in modern language and materials, the house keeps a family resemblance to its neighbors by holding the street edge and retaining the balance of openings, with a large picture window pushed out over the garage door and smaller windows over the front door. Noyes transformed the picture window into a bay window, a type so common in San Francisco, where it is valued for its ageless ability to multiply light and expand views.

One of the costs of living on the edge of the continent is the rapid wear and tear on building materials that face the nonstop weather fronts that charge eastward across the Pacific. Salt-laden air and gale-force winds influenced the architect's selection of materials and methods of detailing. The exterior of the building is kept taut so the wind cannot tear at it. It is clad in prepainted cementitious shingles—a material Noyes discovered in his canvassing of neighborhood buildings that

Contributing editor Lisa Findley practices architecture in Oakland and teaches at the California College of Arts and Crafts. She is currently writing a book, Constructing Culture: Architecture, Memory, Politics, and Hope.

Project: *Ocean Beach Residence*
Location: *San Francisco*
Architect: *Nick Noyes Architecture—Nick Noyes, principal; Scott Baltimore, Stacy Eisenman, Sarah Willmer*
Engineer: *Gregory Paul Wallace*
General contractor: *Stapleton Construction*







THIRD FLOOR



SECOND FLOOR

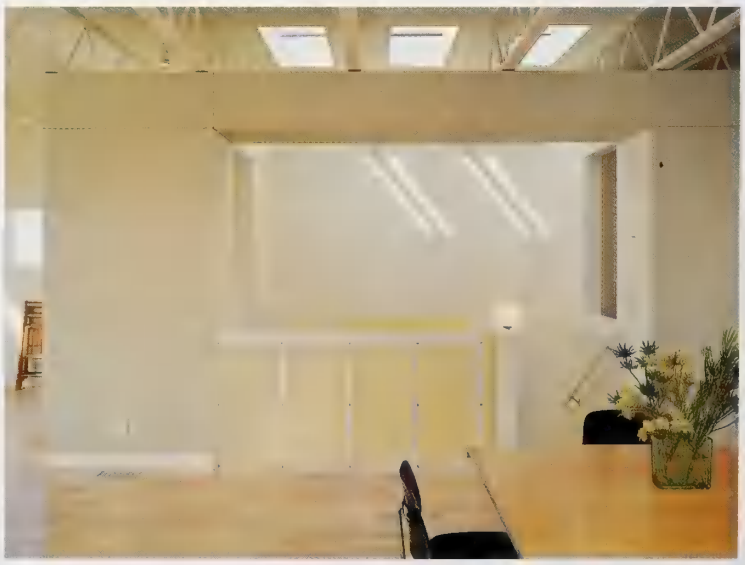


FIRST FLOOR

0 20 FT.
6 M.

The front windows allow unobstructed views to the beach and horizon beyond (top). Small windows and generous skylights allow light to spill into the third floor (right).

1. *Entry*
2. *Garage*
3. *Bedroom*
4. *Master bedroom*
5. *Office*
6. *Living/dining*
7. *Deck*



seemed to be holding their own against the sea air. While the shingles are no longer factory painted, Noyes located a cache of prepainted ones in a warehouse. Although this drastically limited his color choices, Noyes decided the material was worth using. Similar thinking guided the selection of cement board panels for the cladding of the lower story and anodized aluminum for the bay window and sunscreen.

At first, the blue-gray and pale yellow horizontal striping of the front facade seems at odds with Noyes's reputation as an avowed Modernist. On closer inspection, however, it accomplishes two things. It lightens the demeanor of the building, making it a playful, more "living-at-the-beach" place than it otherwise would be. Of far greater importance,



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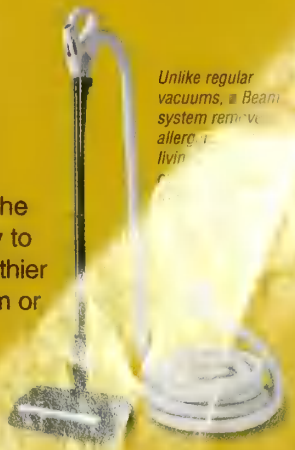
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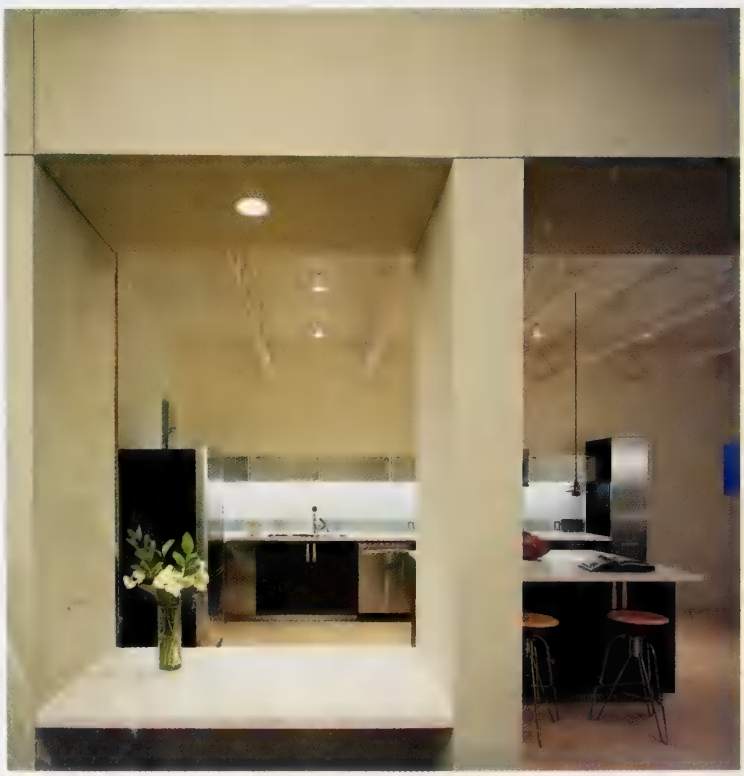
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however, is the way the stripes make the house actually appear lighter in weight. In a microclimate of fog and shifting illumination, the stripes blur the edges of the house in certain light. On foggy days, the yellow disappears, leaving the blue-gray to hold its own. On clear afternoons, when the California sunlight brightens the yellow stripes, the blue-gray color blends with the deep blue sky beyond. This ethereal, variant quality adds a poetic subtlety to a deceptively straightforward project.

Noyes's sensitive approach to the issues involved in building on a remote site and pioneering its development perhaps betrays the fact that he also teaches at the California College of Arts and Crafts near his office. He has the thoughtful, rigorous style of one associated with the academy, a quality reflected in his design. This project demonstrates an admirable restraint combined with an obvious delight and skill in making architecture. It sets a high standard for the projects that continuing San Francisco real estate pressures are sure to bring to this neighborhood on the edge of the continent. ■

Sources

Exterior cladding: *Eternit Eflex Panels (cement board); Fiber GAF Weatherside (cement shingles)*

Aluminum windows: *Bonelli Windows and Doors*

Skylights: *O'Keefe's*

Entrance doors: *Bonelli Windows and Doors*

Wood doors: *Andersen*

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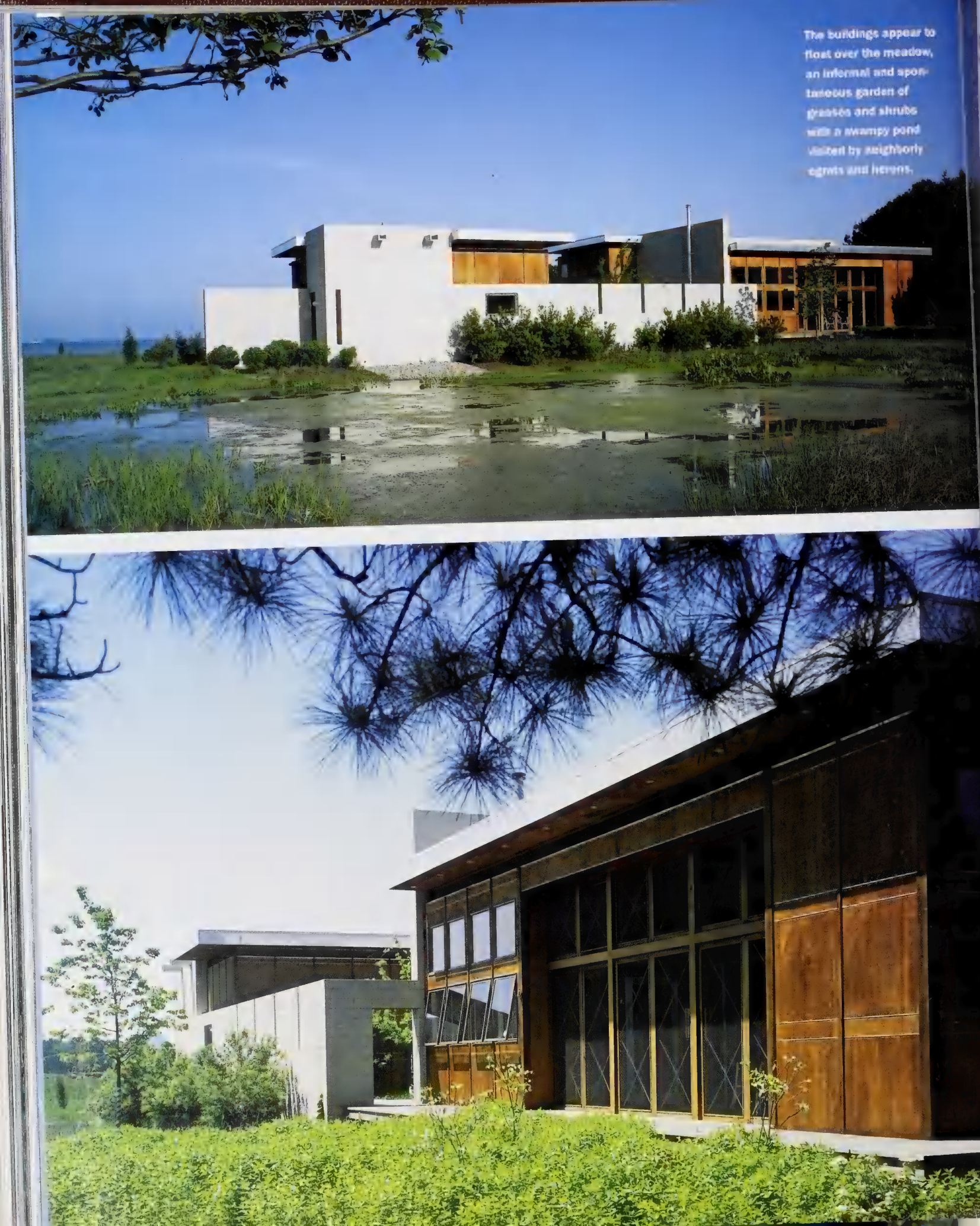
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The buildings appear to float over the meadow, an informal and spontaneous garden of grasses and shrubs with a swampy pond visited by neighborly egrets and herons.

Suman Sorg's house conducts a seasonal symphony with the instruments of water, sky, and marsh

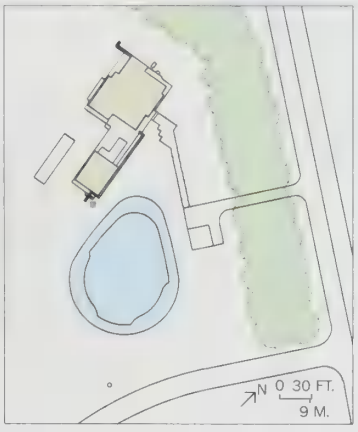
By Jane F. Kolleeny



"My hands have a brain of their own," says Architect Suman Sorg, a New Delhi native whose firm, Sorg Associates, is based in Washington, D.C. She refers to her original rendering of the design of the Van Sweden Bay House and how its low-slung, compoundlike arrangement resembles traditional homes in India familiar to her since childhood.

The assembly of main house, guest house, and the spaces encircling them may have emerged unintentionally and intuitively from deep within Sorg's mind, but there is no mistaking the similarity of her plan to India's multiple small dwellings with outdoor activity areas scattered around them. "What happens outdoors between buildings is important," Sorg emphasizes, and so it is at the Van Sweden house, a project defined from without rather than within. The property is located in remote Sherwood, Maryland, overlooking Chesapeake Bay, with a wall of 25-foot-tall windows on the east side of the house revealing the dizzying expanse of the bay.

It's not surprising that the house is so closely knit to the landscape, since client James van Sweden is a preeminent landscape architect known worldwide. His firm, Oehme, van Sweden & Associates, has influenced American garden and landscape design through its use of richly layered landscapes featuring grasses and perennial flowers in bold, sweeping patterns. Known as the "new American garden" style, it has the low-maintenance, relaxed character of a meadow like the one surrounding Van Sweden's country retreat.



Inside, furniture and art mix modern and country metaphors in a sensitively arranged composition of color and form. Several pieces of furniture are designed by Van Sweden's friend Ben Forgey, Jr., son of the architecture critic for *The Washington Post*.

Forgey designed chairs, a table, a bed, and a fantastic mirror frame, all of which are molded from discarded and contorted driftwood, bringing an air of maritime wildness into the house. With movable walls for separation and privacy, the living room, dining area, and bedroom face the bay in an open, loftlike space that Van Sweden says he favors because "I always wanted to live in a loft in New York City."

Countering this openness is the western side of the house, where the modestly scaled kitchen, den, and bathroom—intimate, private, and cozy—are located. The west front faces a meadow of Van Sweden's design, an informal and spontaneous garden of grasses and shrubs with a swampy pond visited by neighborly egrets and herons. The lines of the house are clear, its sleek proportions complementing the simple materials of plywood and cinder block. The 4,000-square-foot property is utilitarian—low-scaled, basic, and oriented to the landscape.

Van Sweden and Sorg are friends and have worked together before; you get the feeling that their collaboration was playful. Indeed, Sorg's own house is going up next door. They both rallied around the idea of using a 140-foot cinder-block "garden wall" as the defining feature of the house. This wall undulates through the interior, forming the spine of the complex, and bookmarks the outer edges of it, extending into the landscape.

It seemed fitting that a garden wall should define a house for a landscape architect—and the wall, being an architectural element, unifies the building with the garden. It's as if the entire complex were simply hung off of it. The wall delimits a courtyard between the buildings, becoming a backdrop for climbing vinery that promises to take over in the near future. It then maneuvers further to embrace the guest

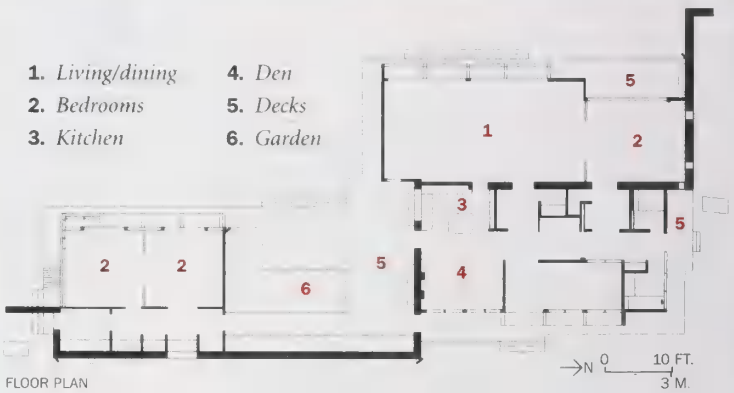
Project: *The Van Sweden Bay House*
Location: *Sherwood, Md.*
Owner: *James van Sweden*
Architect: *Sorg and Associates*
Engineer: *Ehlert/Bryan (structural)*
Consultants: *James van Sweden (landscape); Deborah Gilmore (lighting)*
General contractor: *Coleman-Meredith*





The living room, dining area, and bedroom face the bay in an open, loftlike space, where furniture and art mix modern and country metaphors in a sensitively designed composition of color and form.





FLOOR PLAN

house, ending in a flourish in the untamed meadow in which the houses appear to float.

Sorg is practical—she did not want to put a strain on the human and material resources available in this distant part of Maryland, where contractors aren't sophisticated and product availability is limited. "I am an imperfectionist," she says, referring to the buildings' roughness—as she acknowledges nicks, cracks, and flaws—and her need to open the design to the influences of time and use. In this imperfect world of light, water, sentient life, and greenery, a flavor of India emerges from the wild landscape. ■

Sources

Windows: *Andersen*
Doors: *Andersen*
Hardware: *Andersen*
Cabinetwork and custom woodwork: *Coleman-Meredith*
Paint: *Benjamin-Moore*
Custom-made wooden furniture: *B&B Italia and Ben Forgey*
Interior ambient lighting: *Delray; LSI; FLO; Ingo Maurer*
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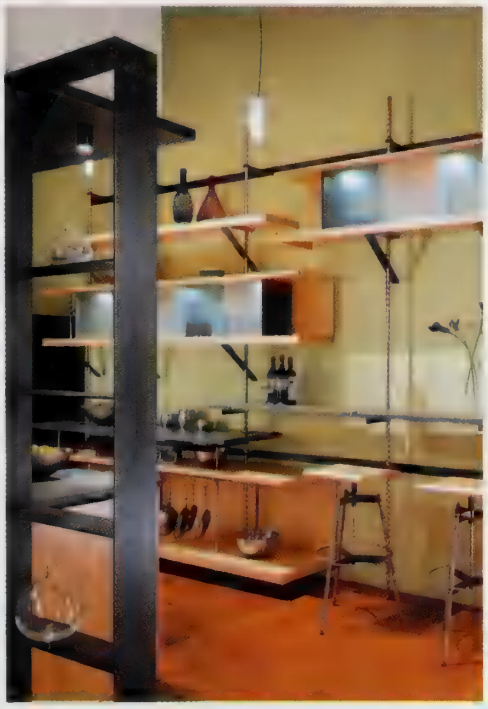
Kitchen & Bath Portfolio

Whether used as public or private space, these **kitchens and baths** are defined by each client's personality. The following projects were created for those with a **particular appreciation for design**, including an industrial designer whose kitchen is showcased below. *Rita F. Catinella*

Kitchen scaffolding suits a designer's flexible work/live environment

When industrial designer Scott Summit commissioned Sand Studios to redesign his Bay-area condominium loft, his primary requirement was for it to function integrally as a space in which both to work and live.

The Sand Studios team (formerly known as South Park Fabricators) needed to create an adaptable environment for Summit. For the kitchen, the challenge was to create a space that "wasn't too much of a kitchen," according to principal Larissa Sand, who worked along with Michel Ramirez on the project. Sand knows the constraints of working and living in the same space—her machine shop, design studio, and home all share one address.



To create the modularity needed, the kitchen shelving works as a height-adjustable "wall of elements" that recalls scaffolding. Featuring an interlocking system of steel, wood, glass, and stone, the units allow the client the flexibility to cook, eat, and work in the space.

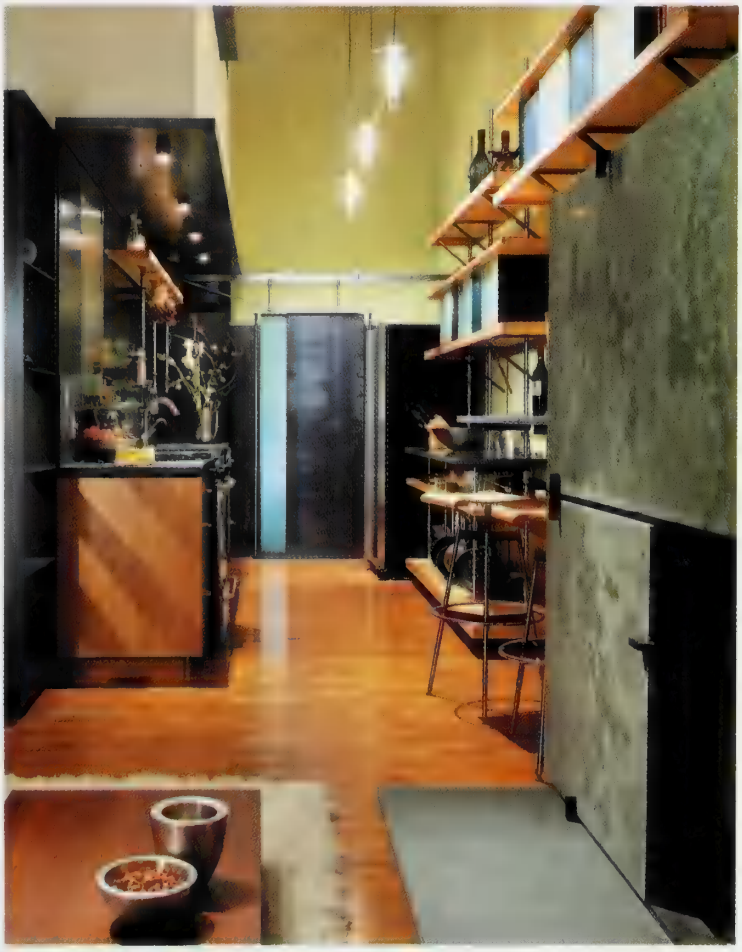
A sliding door hangs on a track system designed and machined at the Sand Studios shop in San Francisco. The door features blue integral-color etched Bendheim glass and hot-rolled black sheet steel to both hide a pantry space and serve as a sculptural focal point.

Although the appliances and some cabinets were already in place, the new and old materials work well together. The material palette includes both traditional and untraditional choices: maple, hot-rolled black sheet steel, stainless steel, Brazilian honed slate, and etched glass. The designers chose maple and glass particularly because "they give dimension without being heavy," says Sand.

No detail was overlooked in the space—the firm even designed and fabricated a test-tube spice-rack holder out of sheet steel to integrate with the sink area.

Architect: *Sand Studios, San Francisco*

Sources: *South Park Fabricators (metalwork, stools); Pacassa Studios (woodwork); Mark Kahn Hamilton (stonework); Bendheim West (glass); 100watt Network (lighting, designed by Larissa Sand); Franke (sink); Grohe (faucet)*





Interlocking maple and glass are just two parts of the kitchen's flexible shelving system (above left). The kitchen opens up into the living area (above). A glass-and-steel pantry door hangs on a track but is supported from below (left).

Kitchen & Bath Portfolio

Colorful cabinetry at the heart of a family's suburban kitchen





Architect, designer, and artist Harley Swedler designed the JAM House in Woodbury, New York, for his most important client to date—his own family. Swedler designed the home along with his physician-wife to share with their three young children; the name of the project is an acronym formed from the first letters of their names.

According to Swedler, the design of the five-color Formica kitchen had to address a number of issues, including expense, ease of fabrication, and durability. "We seem constantly to have 50 people in the house, and this solution allowed us to do something fun, interesting, and practical," says Swedler. The architect has worked with the millworker on several projects besides the JAM House, says Swedler, and he was "an incredible craftsman who we knew could carry it off." All kitchen millwork is Formica laminate over plywood/MDF with maple edges. The exposed steel I-beam structure in the kitchen is raw steel with a polyurethane coat.

The family is currently in the process of furnishing the home with custom pieces, including a Naugahyde banquette in the family room in the same colors as the kitchen's Formica palette.

Architect: *Harley Swedler Architects, Woodbury, N.Y.*
General contractor: *Rastu Construction*
Sources: *Traulsen (refrigerator); Sub-Zero (undercounter freezer); Elkay (double sink); KWC (faucet); Viking (gas range, dishwasher); Vent-a-Hood (range hood); Asko (washer/dryer); Kitchen Aid (stand mixer); Fabio Salvatori (Formica laminate millwork)*

Glass jewel box unfolds into a fully functional Parisian kitchen

Anne-Françoise Jumeau and Louis Paillard, partners in the Parisian firm Périphériques, have designed a variety of space-saving, box-shaped elements for their clients. Recent projects include a "wood box" that makes up a kitchen and a bathroom and another that contains a bathroom, stair, storage spaces, and a sleeping room.

For the renovation of a 2,690-square-foot Parisian apartment, the firm designed a "glass kitchen" interpreted in aluminum, frosted glass, and colored glass. Everything the client needs, including drawers, shelving, a double-basin sink, and appliances, are included in the glass kitchen, which takes up a total floor space of 23 feet long x 9 feet wide. The designers extended the box through the apartment's dining-room wall, where it hides a wall oven, microwave, refrigerator, and a washer/dryer from the view of dinner guests seated in the dining room.

Architect: *Anne-Françoise Jumeau and Louis Paillard Architectes; S. Razafindralambo, R. Schnebelin, A. Rodrigues, assistants*
Structural engineer: *Matthieu David*
Sources: *Vola (plumbing fixtures)*







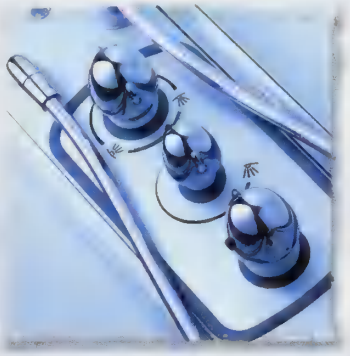
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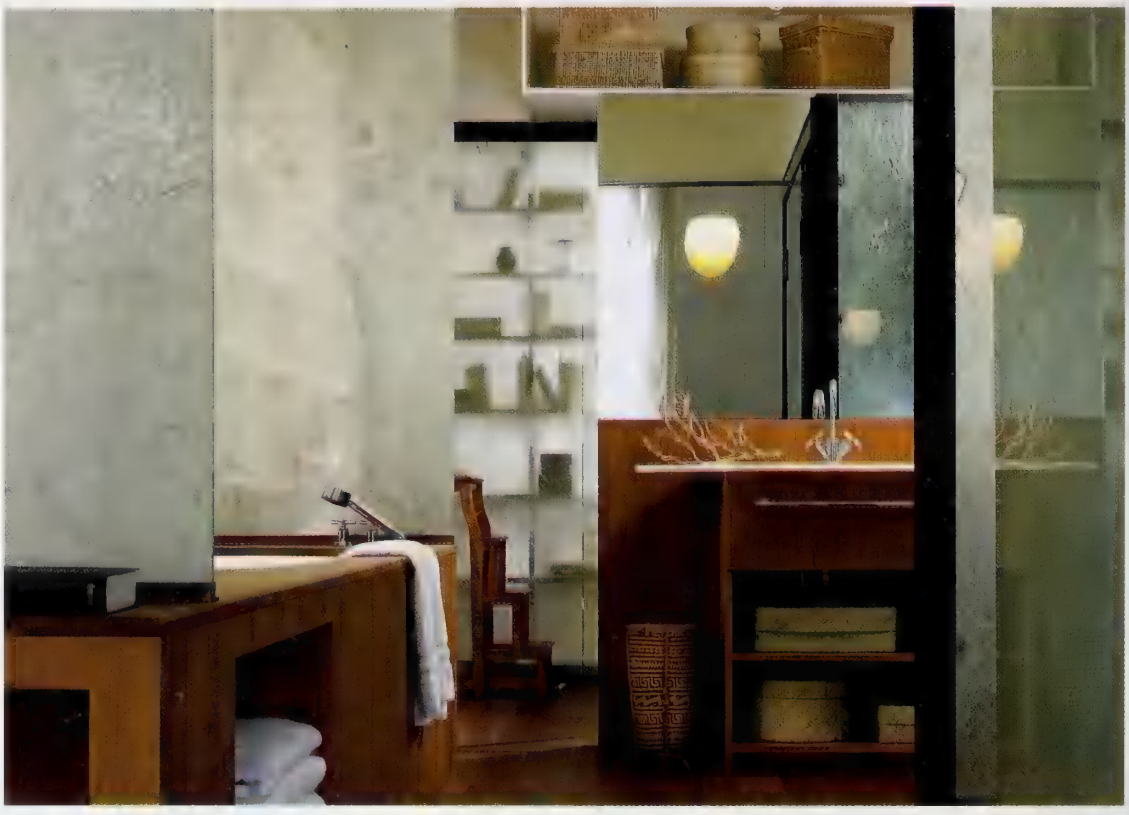
Kitchen & Bath Portfolio

A couple of lofty kitchen and bath renovations in New York's SoHo

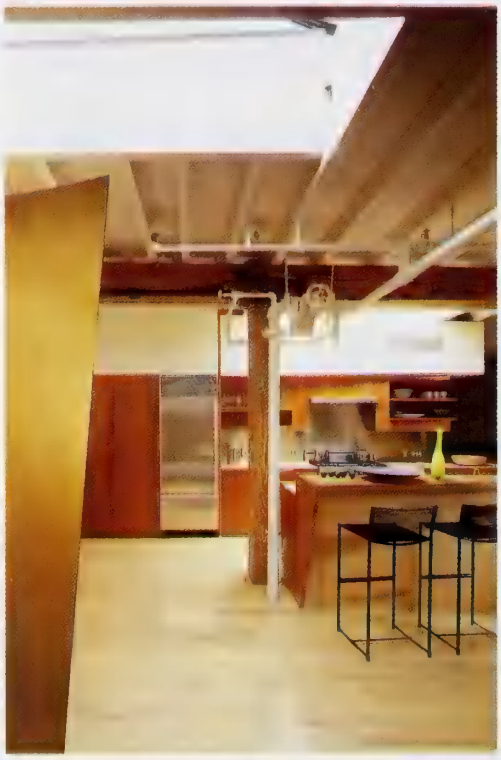
For a 2,500-square-foot-loft renovation on New York City's Prince Street, Hut Sachs Studio partners Thomas Hut and Jane Sachs focused on the use of rich materials in a simple plan with minimal detailing. The master bathroom was designed as an extension of the master bedroom, with no door between them. To allow natural light to filter though the loft, all the walls consist of custom-laminated-glass panels with handmade paper set in blackened steel frames. The bathroom sink, vanity, and tub surrounds are teak; the vanity countertop is polished onyx. As throughout the rest of the space, the flooring is 5-inch-wide Brazilian cherry.

For the Divney loft residence, also in SoHo, Hut Sachs was asked to create a modern, warm, and open space plan for its client. Given the visibility of the kitchen and its proximity to the living room, the team designed the custom cherry millwork cabinets with sculpted handles as though they were living-room furniture. They also contrasted the cherry cabinetry with maple butcher-block countertops (which also complement the maple floors). The stainless-steel appliances were integrated into the kitchen with a stainless-steel backsplash.

Architect: *Hut Sachs Studio, New York City*
Sources: *Divney Residence kitchen—Sub-Zero (refrigerator); Viking (stove, cooktop fan); Bosch (dishwasher)*
Prince Street Residence bathroom—Leucos (lighting); Dornbracht (bathroom fittings); Kohler (bathtub); Artist Kisa Makee (handmade paper); Winn Manufacturing (custom glass lamination)



PRINCE STREET RESIDENCE: Custom laminated glass was used to allow natural light to travel throughout the loft.





DIVNEY RESIDENCE: The client's affection for hand craftsmanship is evidenced in the detailing of materials in the space, including the pattern of cherry-wood handles on clear cherry cabinet fronts (above right).

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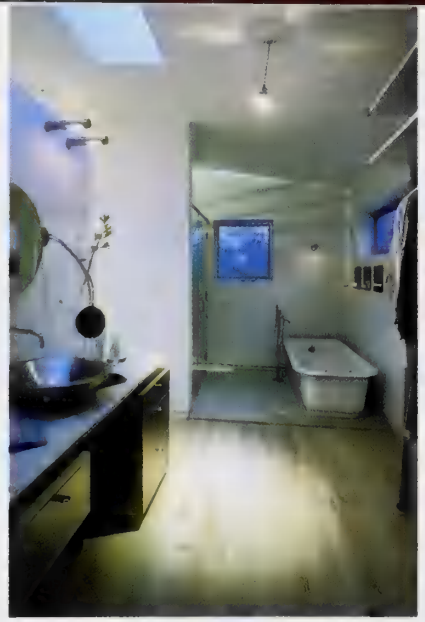
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Kitchen & Bath Portfolio

Modernist master bath for an interior-design-savvy client





The Steinhardt Residence, located in the villagelike town of Birmingham, Michigan, was designed by the local firm of McIntosh Poris Associates. Created for Janice Steinhardt, the three-level, 3,500-square-foot contemporary home is steel-framed, features concrete floors with radiant heat (maple on the second floor), soapstone counters, and aluminum-framed windows. The architects, Michael Poris, AIA, and Doug McIntosh, worked with the client, an interior designer, to integrate all the materials, interior finishes, and furnishings.



The residence's master bedroom is located on the second floor. Here, vanity cabinets feature white matte lacquer with white opaque glass, and a stainless-steel cabinet on casters slides under the Botticino marble countertop. Broken, tumbled Botticino marble is also used on the shower and bathroom floor. The toilet and shower are each separated from the rest of the bathroom by clear glass enclosures. Details such as a skylight, freestanding tub, Italian accessories and lighting, and wet/dry-area flooring all define the space.

Architect: *McIntosh Poris Associates, Birmingham, Mich.*
Sources: *Flos, Boffi (lighting); Kohler (tub, sink); Hansgrohe (bathtub faucet, shower hardware); Vola (sink faucet); Artcraft (cabinetry); Botticino marble (countertop, shower and bathroom floor); Duravit (toilet); Agape (mirror, bathrobe hooks)*

Sculptural concrete bathrooms for a West Coast artist

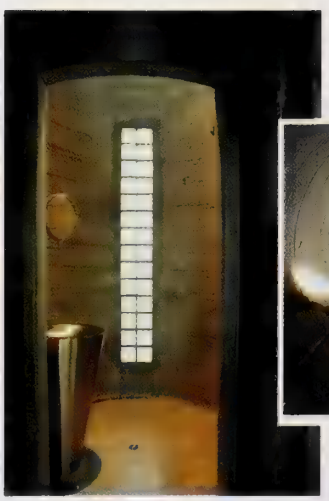
For the Katselas residence in West Hollywood, California, LCMK Architecture completely remodeled a 1920s bungalow and designed a 4,000-square-foot addition with a studio space, music room, guest quarters, pool house, and garages. Although surrounded by two- and three-story apartment buildings, the one-story house manages to have a lot of fenestration yet retain privacy.

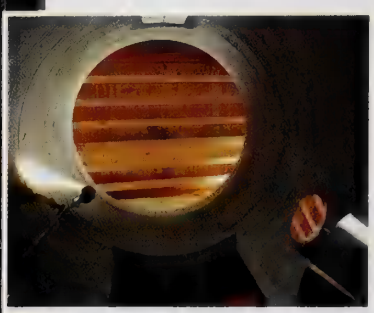
According to architect Leonardo Chalupowicz, AIA, who designed the space with artist/design partner and the home's owner Milton Katselas, the goal of the project was to exploit the irregular and intimate quality of handmade things and natural materials. Influenced by Carlo Scarpa, the designers favored materials such as cast-in-place concrete, steel, and wood. The master bathroom incorporates a large poured-in-place concrete bathtub, Japanese soaking tub, sauna, custom-designed glass shower with steam, and screens that can be raised or lowered to regulate the light. The guest bathroom/powder room is an open-top, cast-in-place-concrete cylinder enclosing a sink and shower. The unit projects into the adjacent studio, where it does double duty as a piece of sculpture.

Architect: *LCMK Architecture, Los Angeles*
General contractor: *Pier Construction*
Sources: *Dornbracht, Vola (faucets); Mr. Steam (steam/sauna); Rex (lighting); Spiral III Design (built-ins, soaking tub, stone sink, wood and fabric shades); Sony (television)*









Master bathroom (left two); guest bathroom/powder room (right two).

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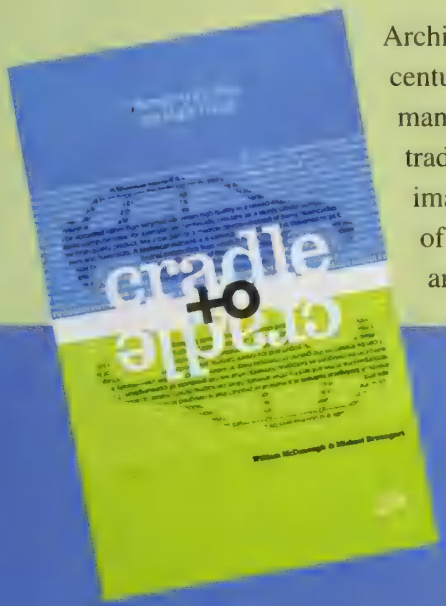
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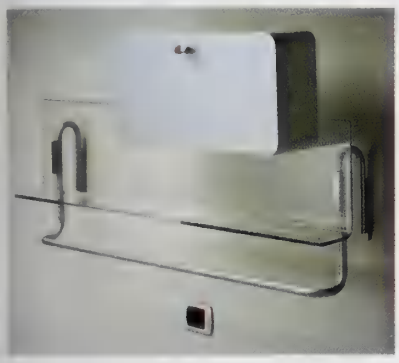
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Residential Products

Kitchen/Bath Industry Show Review

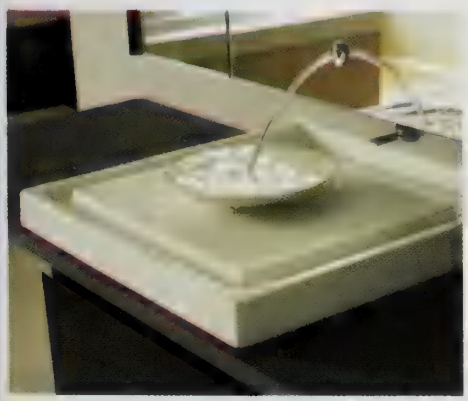




▲ Bathing beauties
Dornbracht continues its Interiors Collection this year with a second edition of furnishings for the bath by such international designers as Christophe Pillet and architect Claudio Silvestrin. Rodolfo Dordoni contributed several designs, including a pair of wall-shelf systems. Each is composed of a shelf and towel bar but can be individualized with added amenities such as a mirror or medicine chest. Light Drop, designed by Jean Marie Massaud, is a multitiered towel rail that also incorporates a mirror. 800/774-1181. Dornbracht USA, Duluth, Ga. **CIRCLE 200**



► A sinking feeling
The new Oceanview floor sink makes tasks such as washing the dog or rinsing muddy car mats easier and more convenient. While designed to be installed flush with the floor, it can also be installed in many standard cabinets. Dimensions are 48" x 25" x 7". Kohler's Purist Suite Collection is the first coordinated home-spa collection for the bath. Celebrating the grace of flowing water and natural materials, Purist Suite features such elements as natural lava-stone countertops, wet-surface lavatories, and laminar-flow faucets integrated within mirrored storage, as seen here in the Purist Wet Panel Lavatory with bowl. Dimensions for the mirrored cabinet with faucet are 24" wide x 36" high, and the lavatory is 24" wide x 23½" long. 920/457-4441. Kohler, Kohler, Wis. **CIRCLE 203**





▲ Spa cuisine at home
The ED 220 is a steam-and-convection combination oven that makes healthful cooking quick and convenient. The dual-oven system combines the dry heat of a convection oven with non-pressurized steam in precisely calibrated proportions. The steam generator produces four different degrees of humidity in the oven, with a mist button providing an extra burst of steam at critical moments. The 0 percent humidity setting allows the convection mode to give bread a crispy crust or poultry a golden brown finish. Available with a white-tinted, anthracite-tinted, or aluminum-backed glass front. 800/828-9165. Gaggenau, Huntington Beach, Calif. **CIRCLE 201**

► Lofty aspirations
For Loft is a new kitchen and bath collection by Kallista. Designed by Michael Smith to blend into contemporary environments, including industrial, loftlike apartments and homes, the centerpiece of the collection is a full-size kitchen island with adjustable poles reaching all the way to the ceiling. A smooth carrara marble countertop surrounds an oversize, undercounter-mounted fireclay kitchen sink. 920/457-4441. Kohler, Kohler, Wis. **CIRCLE 202**

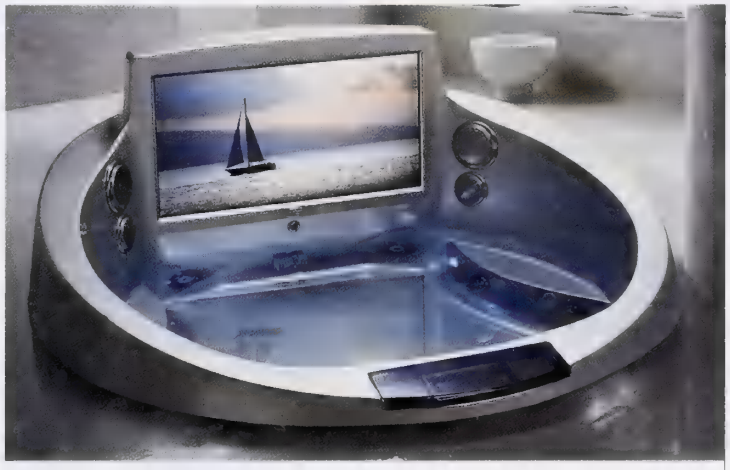




◄ A peek inside the fridge
Sub-Zero introduces a new refrigerator for residential use that features a commercial-look glass door. Electronic controls offer accurate temperature adjustment and the glass door offers a variety of interior lighting options, ranging from a soft glow (door shut) to full illumination (door open). The refrigerator also features extra interior storage (19.9 cubic feet) to compensate for no on-door shelving. The fridge comes in a stainless-steel finish with several overlay options. 800/532-7820. Sub-Zero, Madison, Wis. **CIRCLE 204**

Residential Products

Kitchen/Bath Industry Show Review



▲ Bathing takes center stage

La Scala by Jacuzzi is a whirlpool bath for two that includes a built-in entertainment center. The second addition to Jacuzzi's Private Collection, La Scala features a 42" high-definition plasma screen, DVD, CD, AM/FM stereo, sophisticated surround-sound system, and a floating remote control. It also offers a full-body massage with 10 fully adjustable hydrotherapy jets. Available in white, black, and high-luster platinum, La Scala measures 82⅛" long x 72⅛" wide. Available in limited production. 925/938-7070. Jacuzzi, Walnut Creek, Calif. **CIRCLE 205**

► Burnin' up

The RGSC-305 by DCS (Dynamic Cooking Systems) is the first 30" five-burner gas range designed for residential use. The self-cleaning range features a center burner rated at 17,500 BTU and four 16,000 BTU external burners capable of producing quicker boiling times and faster meal preparation. The recipient of the Kitchen and Bath Business Product Innovator Award, it also features true gas convection and ideal simmer settings. 800/433-8466. DCS, Huntington Beach, Calif. **CIRCLE 206**





◄ Island topping

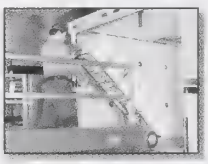
The Best by Broan IS502 island range hood combines glass and stainless-steel design and a high-efficiency exhaust system with 450 CFM of power. Multilevel halogen lighting provides bright cooktop illumination and a low nighttime setting. Measuring 27½" x 39", it includes a 6" round duct connector with a built-in back-draft damper. 262/673-4340. Broan, Hartford, Wis. **CIRCLE 207**

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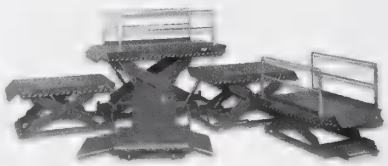


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CALL 4 ENTRIES

The industry's premier forum for innovative designs in furniture hardware is once again seeking entries. The year 2002 marks the "17th Annual Doug Mockett & Company Design Contest". The competition is strictly limited to furniture components of any sort including hardware, accessories, and computer furniture components.

Design Competition Winner

Entries close September 1, 2002 and the winner(s) will be announced about December 1. First Place consists of $1,000, an engraved achievement award and a royalty based upon sales. All entries must arrive FEDEX® or Registered, Return Receipt mail. For further information please contact us.

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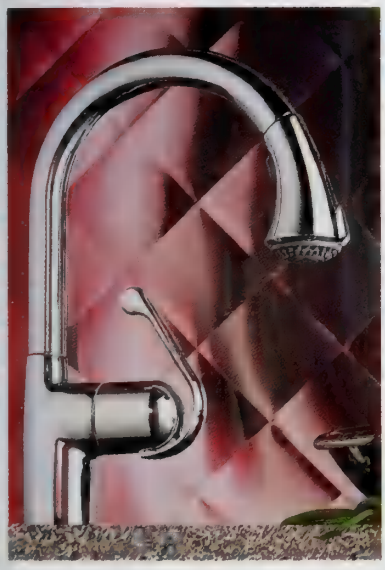
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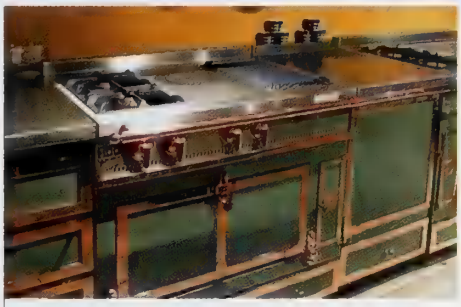
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▼ Spray the right way

The Ladylux Café pull-out spray kitchen faucet by Grohe now features a dual-spray trigger-type control that allows convenient switching between regular flow and a spray flow. Grohe's new Taron shower system brings the luxury of a multihead shower to almost any shower enclosure. Taron includes a cylindrical showerhead, a dual-spray hand shower, four body sprays, a thermostatic valve, and a concealed shampoo/accessory tray. 630/582-7711. Grohe, Bloomingdale, Ill. **CIRCLE 208**







▲ Country kitchens

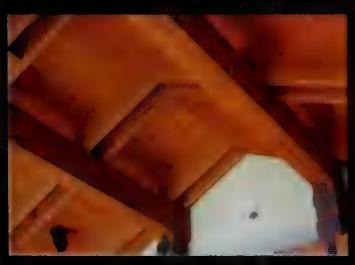
La Cornue introduced a new line of cabinetry designed to match the porcelain enamels and metal trims of its stove collection. The line is available in a range of colors and finishes, including copper, nickel, stainless, chrome, satin or polished brass, and features hand-selected materials, including steel plate and walnut and oak woods. Specialty furniture pieces of fine wood fitted with basketry, chopping blocks, and buffets may be seamlessly integrated or stand alone. 800/892-4040. Purcell Murray, Brisbane, Calif. **CIRCLE 209**

► Monsoon warning

Interaktiv by Hansgrohe is a new line of kitchen and bathroom faucets and accessories in five handle styles. Suitable for new construction but ideal for bath renovation projects, Interaktiv shower panels like Monsoon, pictured here, are delivered preplumbed and preassembled and are made of durable, easy-to-clean aluminum. 770/360-9880. Hansgrohe, Alpharetta, Ga. **CIRCLE 210**



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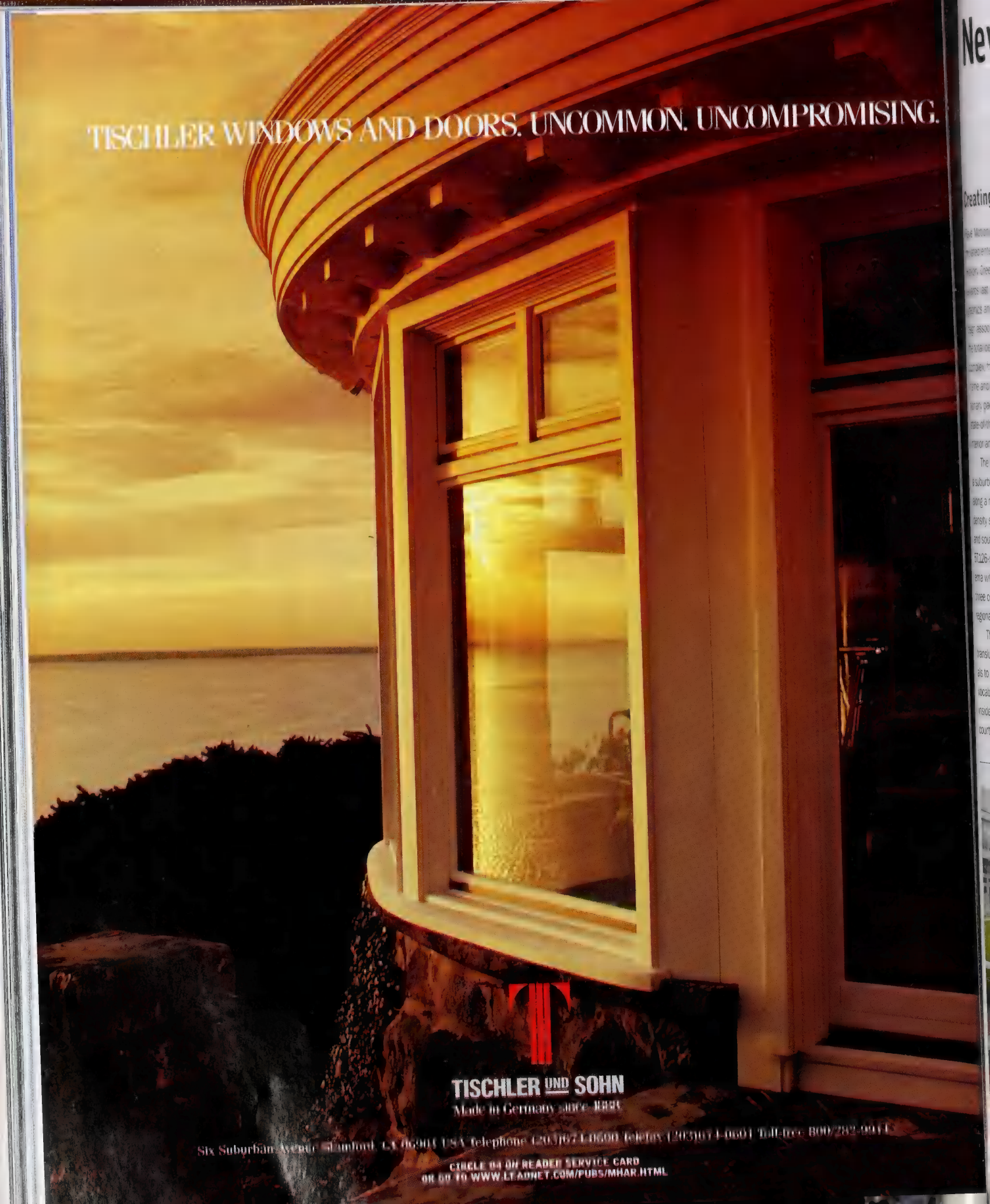


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New Products

The designer and the fabricator of **signage and graphics** each need to find the right partner. The dual goal is to integrate the project's interior, exterior, and site while defining a clear identity for the client. This can be accomplished by exploring combinations of materials and new technologies, such as a **photo engraving process** that replicates photos on backlit Corian, described on these pages. *Rita F. Catinella*

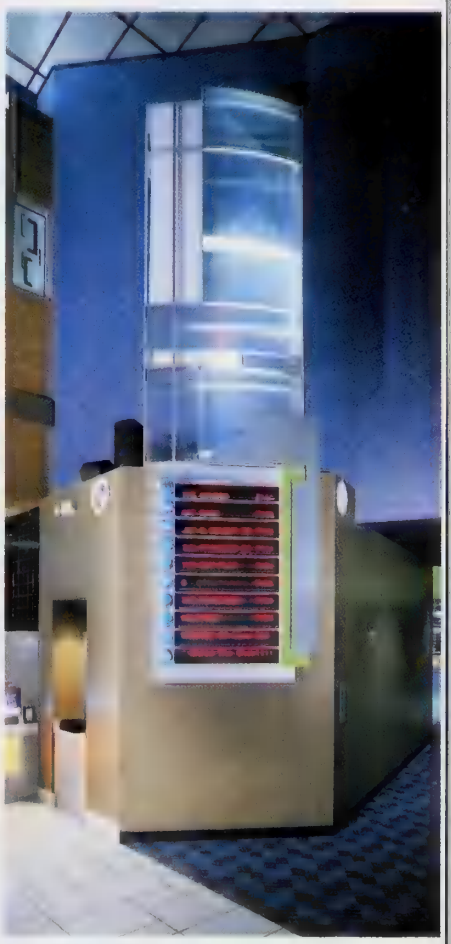
Creating a new entertainment brand—inside and out

Rave Motion Pictures, a recently formulated entertainment company in Hickory Creek, Texas, won four awards last year—two specifically for graphics and signage. Dallas-based dsgn associates assisted Rave with the total design development of their complex, from providing a concept name and corporate logo and stationary package to designing a state-of-the-art cinema, including all interior and exterior signage.

The 9.9-acre site lies between a suburban retail center to the north along a major roadway and a low-density suburban region to the west and south. The program was for a 57,126-square-foot, 3,108-seat cinema with 16 stadium auditoriums, three concession stands, an arcade, regional offices, and parking.

The firm layered opaque, translucent, and transparent materials to reinforce the new brand's vocabulary, both on the exterior and inside. Light is filtered into the lobby, courtyard, and media tower through tinted glass, clear glass, and aluminum screens. This layering is carried through into the lobby, secondary lobbies, auditoriums, and rest rooms by video collage and print mediums. These graphic devices appear above translucent plastic ceilings, behind the translucent concessions and ticket-box graphic panels, embedded in logos in the limestone floor, and previewed on plasma screens and video monitors.





The Rave Motion Pictures identity extends from a glass media tower (top) to interior directories (right).

Custom signage, including an exterior vertical steel, aluminum, and glass media tower; theater marquees; menu boards; concession graphics; and wall sconces, carries the corporate brand throughout the theater. The dsgn group worked closely with Dimensional Innovations on the interior signage and with Chandler Signs on the exterior signage of the project. 913/384-3488. Dimensional Innovations, Overland Park, Kansas. CIRCLE 211 210/349-3804. Chandler Signs, San Antonio. CIRCLE 212





Safeco's illuminated site identifier, left. Boeing's Seattle headquarters sign, top.

Seattle firm helps define a variety of corporate identities

Trade-Marx Sign & Display Corporation designed five double-sided primary site identifiers throughout the Safeco corporate campus in Redmond, Oregon. Working with Zimmer•Gunsul•Frasca Partnership and graphics consultant Mayer/Reed, Trade-Marx fabricated sign cabinets from 12-gauge stainless-steel with hydro-cut reverse text. The sign houses fluorescent fixtures illuminating the white, translucent acrylic, push-through letters. The logo is acid-etched with paint infill, and the cabinet top, base, spine, lens holder, and letters are copper. A concrete base is clad in sandstone.

In 1987, Trade-Marx was given a contract to provide Boeing with signage worldwide. At that time, there were more than 60 variations on the Boeing identity. After several years, Boeing and Rick Eiber Design simplified them to just a couple of designs with strict usage guidelines. The sign for the Seattle headquarters is fabricated from aluminum sheet formed and welded into pan channel letters with neon tube lamps in the channel to provide reflected illumination. The letters are 31" high, and the logo is 23'11" long. 206/623-7676. Trade-Marx Sign & Display Corporation, Seattle. CIRCLE 213

New Products



◄ Deliver a strong presence

Roland Gebhardt Design's signage for UPS has been installed in Philadelphia, Chicago (shown), and now Memphis. Roland Gebhardt is the first designer to be entrusted to deal with the famous logo—originally created by Paul Rand—in a three-dimensional form. In Chicago, the firm worked with Poblocki & Sons to produce a monolithic marker that projects toward the Tri-State Tollway and signals the front of the facility. 212/925-4110. Roland Gebhardt Design, New York City. **CIRCLE 214**



▲ Timely signs

ESI Design has created an extensive exterior signage program for the Reuters Building at 3 Times Square using its client's unique core content, global news and financial-markets information, as the focus. ESI Design developed 12 display templates for the new signs, including a 13-story vertical screen. With the exception of the entryway, all signs are Mitsubishi LED screens. 212/989-3993. ESI Design, New York City. **CIRCLE 217**

▼ Theatrical signage

The Stadium Promenade retail area in Ventura, California, is identified by a pylon sign made of glazed tile, fabricated metal, and neon designed by Graphic Solutions. The firm also provided design services for the interior and exterior signage of the Promenade's Century Theaters entertainment complex. The complete program for the theater included entrance and tower landmark signs, lobby, snack-bar, arcade, coffee-shop, and retail signage. 619/239-1335. Graphic Solutions, San Diego. **CIRCLE 215**



► Photographic relief



A photo-engraving process exclusively produced for DuPont Corian by Backlight Images was used to etch this intricate picture of a Victoria's Secret model. The process permanently preserves 3D photographic images on Corian solid surfaces. The 3D effect is achieved by a relief process that communicates a variation between shades of light and dark. Shown above is the sign with and without backlighting. 800/4-CORIAN. DuPont Corian, Wilmington, Del. **CIRCLE 216**





▲ Rainbow of materials

For the children's cafeteria at the American Museum of Natural History, Dale L. Travis worked with Paula Scher of Pentagram on an unusual signage job including a vitrine with 10,000 marbles and others with fabricated lizards, snakes, and fish. For the marbles vitrine, the firm researched and tested the best materials to use under the museum's unusual conditions, then hand glued each of the marbles to create the look of thousands of planets. Travis also placed 128 hand-cast glass tiles at kids' eye level on eight columns throughout the room. For the American Folk Art Museum, the firm designed a donor wall of colorful recycled wooden plaques. 212/243-8373. Dale L. Travis Associates, New York City. **CIRCLE 218**

▼ Fresh breath

A new addition to 1500 Broadway in New York's Times Square, the Wrigley Company's spectacular WRIGLEY sign, designed by Clear Channel Spectacolor, incorporates a 20' x 30' Multimedia LED video display, a 32" high red LED ticker, and a backlit flex-face static ID box. 800/888-3007. Multimedia, Rancho Cordova, Calif. **CIRCLE 219**



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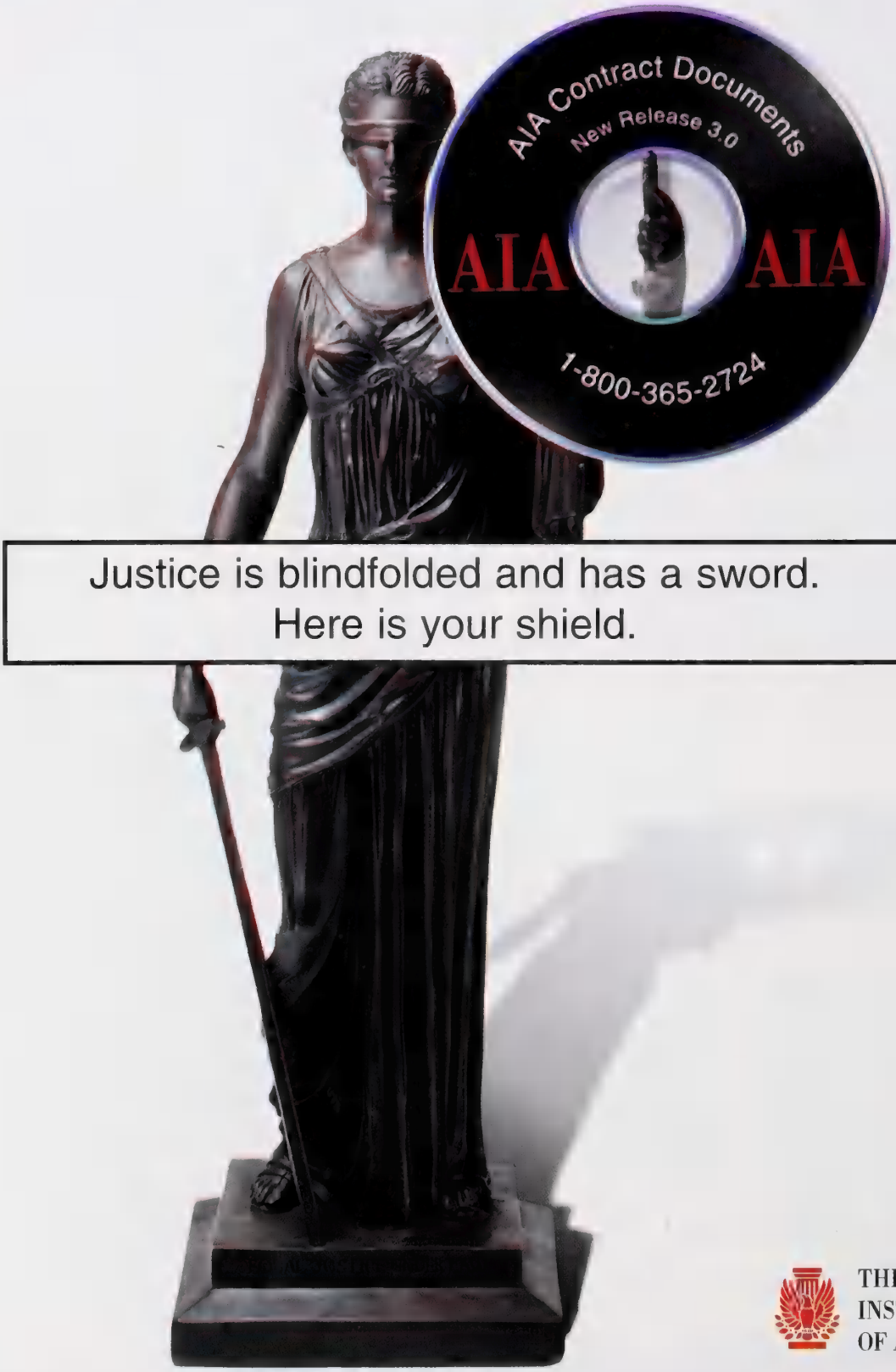
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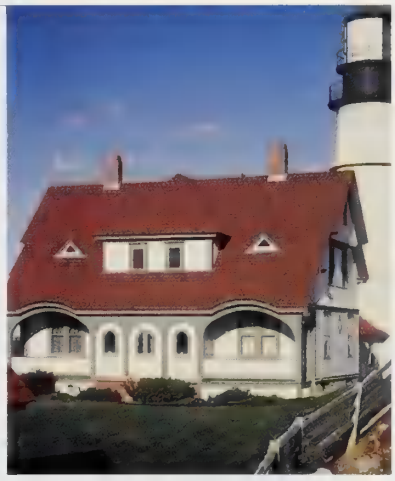


▲ Intercontinental coating

Lumiflon, the architectural coating that protects Japan's Akashi Strait Big Bridge, the Fuji TV headquarters office, the NEC building, and All Nippon Airlines airplanes, is being adopted by American architects and fabricators across the country. Recent U.S. projects using Lumiflon include the new Experience Music Project in Seattle, the Connecticut Children's Medical Center in Hartford, and the Nascar Café in Orlando. PPG manufactures a Lumiflon coating that is available in bright colors and a high gloss for architectural building projects. 704/329-7614. AGA Chemicals, Charlotte. **CIRCLE 220**

► Historical reroofing

The oldest lighthouse in Maine, Portland Head Light, has been guiding maritime traffic through the harbor since the end of the 18th century. When the light's roof needed repair, Rainbow Construction recommended CertainTeed's Hatteras Shingle in Lighthouse Red. The oversize 18" x 36" shingle, with its deep shadow lines, gives the lighthouse roof an authentic appearance. 610/341-7000. CertainTeed Corporation, Valley Forge, Pa. **CIRCLE 222**



▼ Lighter than air

Alias offers the Frame seating series designed by Italian Modernist Alberto Meda. Frame consists of an extruded aluminum profile and die-cast attachments in stove-enameled or polished aluminum; seats and backs are available in a palette of polyester meshes and black leather. The series includes Floatingframe, a beam-mounted version with multiple seating designed for airports and other public spaces. 631/549-1302. Alias USA, Huntington Station, N.Y. **CIRCLE 224**



Product of the Month WallFurnishings

New England Classic introduces WallFurnishings, a line of precut, nail-free, factory-finished kits that offer the look of custom millwork at half the cost. Arriving ready to install on-site, WallFurnishings panel kits are available in traditional to modern styles, in a wide assortment of sizes, and in a variety of wood types, including oak, maple, cherry, and paint-grade. New England Classic partnered with Velcro to create WallFurnishings' pressure-sensitive, proprietary hidden fastening system, MagicStrip, which makes nail-free installation possible. 888/460-6324. New England Classic, South Portland, Maine. **CIRCLE 221**



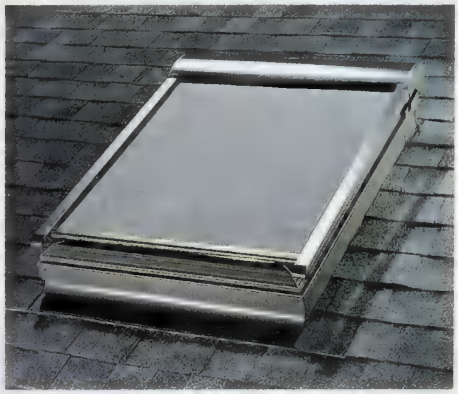


◄ Could be wood, but isn't

ICORE has an extruded synthetic core that is impervious to moisture and incorporates sound-dampening chambers for a quieter sound underfoot. ICORE features 10 hardwood visuals with a textured wood plank design and can be installed over almost any existing floor. 800/241-2262. Mannington Commercial, Calhoun, Ga. **CIRCLE 223**

▼ Cooler skylights

The Velux Exterior Heatblock Awning is now available for new Velux manual venting skylights and fixed skylights. Introduced at the 2002 International Builders' Show, Velux claims that the patented Heatblock Awning is the first and only electrically controlled, exterior skylight awning for the residential market. The exterior awning can reduce solar heat gain up to 40 percent more than the already energy-efficient Comfort Glazing that comes standard with all Velux skylights. 919/844-0064. Velux, Raleigh. **CIRCLE 225**





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Product Literature

Enclosed luminaires

Enclosed Prismalume luminaires are detailed in a new brochure offered by Holophane. A balance of uplight and downlight makes enclosed Prismalume luminaires appropriate for industrial, educational, retail, and commercial applications. 740/345-9631. Holophane, Newark, Ohio. **CIRCLE 226**

Lighting finish palette

Starfire Lighting offers *The Palette*, a brochure depicting the company's complete new line of product finishes. The four-page brochure features actual swatches of Starfire's range of "standard" and specialty finishes for all the company's custom and industrially produced interior finish designs. 800/443-8823. Starfire Lighting, Wood-Ridge, N.J. **CIRCLE 227**

Updated environmental CD

BuildingGreen Inc., publisher of *Environmental Building News*, has just released an updated and expanded version of the *EBN Archives* CD-ROM, a compendium of all back issues of their newsletter. With more than 1,350 pages of green-building information, the *Archives* are fully searchable and provide instant access to every article, diagram, and photo as they appeared in print—from the first issue in 1992 through the end of 2001. 800/861-0954. Building Green Inc., Brattleboro, Vt. **CIRCLE 228**

Lighting design ideas

Prescolite has announced the availability of the third issue of *illume*, the company's magazine devoted to architectural lighting design ideas. 510/562-3500. Prescolite, San Leandro, Calif. **CIRCLE 229**

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Site provides information on events throughout the U.S.A. involving Dutch design **www.dutchdesignevents.com**

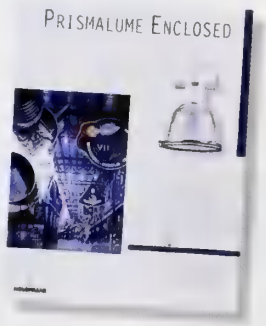


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Expanded polystyrene CD

The EPS Molders Association has released the *EPS Just Makes Sense* video in a CD-ROM format. The CD provides a visual overview of expanded polystyrene building applications from wall and floor insulation to roofing and below-grade foundations. 800/607-3772. EPS Molders Association, Crofton, Md. **CIRCLE 230**

Composite material guide

The Swan Corporation offers an eight-page guide to its new line of Veritek products that includes a bathtub, bath-alcove walls, and shower-alcove walls. Veritek is Swan's compression-molded composite material with no surface coating to chip or crack, because the color is molded throughout. 314/231-8148. The Swan Corporation, St. Louis. **CIRCLE 231**

Window/patio-door catalog

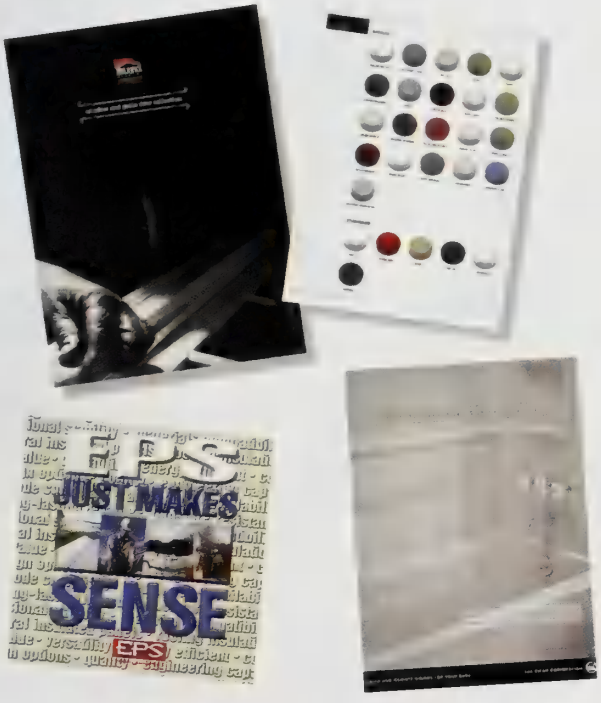
Hurd Millwork Company offers its latest full-line window and patio-door collection catalog and complete sizing and specification catalog. The products in the catalog include double hungs, casements, sliders, awnings, and special shapes. The product guide also provides additional information about the construction, weatherproofing, and options for each product in an easy-to-read format. 800/2BE-HURD. Hurd Millwork Company, Medford, Wis. **CIRCLE 232**

Steel-locker catalog

Penco's new steel-locker catalog includes photos and specifications for steel lockers and accessories. Available in a variety of colors and styles, Penco lockers are ideal for use in school corridors, school and recreational locker rooms, and any business and industrial environment where clothes and other articles need to be stored. 800/562-1000. Penco Products, Oaks, Pa. **CIRCLE 233**

Colored-concrete market

Master Builders has released a new literature packet that provides detailed information on the company's entry into the colored-concrete market. Working together with alliance partner L.M. Scofield Company, Master Builders now provides expertise in both chemical-admixture and colored-concrete technologies. 216/839-7071. Master Builders, Cleveland. **CIRCLE 234**



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Program title: **The House of the Future Has Arrived, Architectural Record (07/02, page 149).** 07YEDITJ

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ROUND ZERO *(continued from page 126)*

memorial zone (leaving the exact nature of that to be determined). It hows a compromise planning solution with two of the three pre-WTC ast-west streets going through the site, although not necessarily open to ars, and it reinstates the north-south Greenwich Street. Childs is also oating a proposal for a skyscraper with an uninhabited top that rivals the eight of one of the World Trade Center towers (page 23)—just in case the bring back the skyline" sentiment increases.

According to *The Wall Street Journal*, Childs's master plan will e one of the six schemes to be presented to the public on July 20. This a confusing piece of news for some of us, and it must be to John Belle, ho talks about the six schemes his own firm is whipping up for the ublic meeting. We'll soon find out. Someone involved on the state side ays, off the record, "The best ideas will be integrated in up to six plans r the public discussion." After public input, three schemes are supposed to be presented by BBB in September, with the final scheme dopted by the end of the year.

If there appear to be a lot of proposals out there, just wait. John uccotti, a former chair of the New York City Planning Commission and former deputy mayor, who is now head of Brookfield Financial roperties, which owns the World Financial Center adjacent to the VTC site, has also hired Cooper Robertson to draw up a plan for the 16-cre site. Zuccotti may not have governmental power or be a leaseholder f the WTC property, but he does control 8 million square feet next oor. He has been concerned that his tenants would feel left out in the old unless he, too, comes up with a scheme. Alex Cooper notes his rm's proposal has been making the rounds of the power gang, too. Whether or not it is part of the July 20 assortment, Cooper claims not to are. "In the end, no one person's plan will emerge—it's going to be a lend," he postulates.

So what happens to the final scheme at the end of the year? Do lverstein and Westfield have to accept it? What if there are things they on't like about it? The Port Authority and LMDC say that the plan will eflect the input of these lessees. As one close to the situation points out, he lease allows Silverstein to rebuild exactly what was there. But since hat doesn't make sense for several reasons (low demand for office space nd perceived fear of renting offices more than 60 stories high, for example), the negotiations between the various parties on amending the lease nd arriving at a mutually satisfying master plan will continue.

Certainly, the Port Authority wants Silverstein to keep paying nt and is trying to help recoup his insurance for both buildings. Yet, as lbert Butzel, a lawyer and consultant, notes, "If the final scheme is well ceived and Silverstein and Westfield still don't like it, the Port Authority robably could terminate the lease and look for another developer."

nfluence is all we have If the architecture community has any effect n the WTC site, it won't be through institutionalized power. It will only e through influence. All the coalitions that include architects and anners—such as the Regional Plan Association, leader of the Civic lliance; the Municipal Arts Society with its survey of people's preferences "Imagining New York"; or the American Institute of Architects and the rchitectural League, two of the key forces behind the planning analyses the New York New Visions coalition—are closely eyeballing the process. There have never been so many watchdogs on a public process. So far, the groups are highly optimistic that their voluntary analyses are influencing the thinking of the LMDC and perhaps the Port Authority. But architect Margaret Helfand, FAIA, cochair of the executive committee for New York New Visions, brings up a significant issue: "The big vision will come after the pragmatic phase. But we need to think of the process that will take us from the master plan to the architecture phase."

Another New York group hoping to influence the quality of architecture at the WTC site is the Architectural History Foundation. Spearheaded by its president, Victoria Newhouse, the AHF has enlisted the advisory services of a number of disinterested parties, such as architectural historians Marvin Trachtenberg and Jean-Louis Cohen, Cooper Union architecture dean Anthony Vidler, and theorist Beatriz Colomina, to help shape its agenda for making sure architecture is present at Ground Zero. The problem is determining how and when architecture can happen.

Memorialization and the families of 9/11 As for the memorial, so far its size, nature, and design process remain vague. Most architects and planners talk of leaving the footprints of the two towers clear for a memorial—whether that takes the shape of a building, a garden, a large sculpture, or some other form. This approach defers to the various groups representing the families of the victims of the tragedy. But they too have no official power, only a very strong (if it can be unified) voice. As Nikki Stern, a communications consultant for architects who lost her husband on September 11, puts it, "We have to make this a beautiful place where the architecture is great and life-affirming."

HELFAND SAYS: "WE NEED A PROCESS THAT WILL TAKE US FROM THE MASTER PLAN TO THE ARCHITECTURE PHASE."

There are no guarantees. And the process, which state officials claim is so "public" or "accessible," is hardly transparent. These officials attend meetings and exclaim how democratic the process is, but at the same time they try hard to wriggle out of concrete answers to specific questions. The "multiuse" programming of the site remains a question. For those who advocate housing, they should know that the Port Authority's Allen Morrison states, "The PA doesn't have authorization to build housing or to cause its lessees to build housing on that particular parcel." As for the city's role, who knows? Amanda Burden, New York's chair of city planning, emphasizes, "The sharing of information is most important over the next few months." We agree. But so far facts are fungible and obfuscation reigns. The architectural community must stay on guard and keep applying pressure. Michael Sorkin complains, "That puts us in the whiny resistance mode." But this is New York. It might work. ■

Remembrance *(continued from page 87)*
reveals the mundane artifacts of daily life—toys, games, a sink—for a particular Jewish family hidden from German authorities in a high attic. By clustering around strategically placed monitors, gaggles of people from all over the world can hear Anne's own words from her diary and view the video testimony of her childhood friend or of Miep Gies, the secretary who helped keep the Frank family alive. Anne's house museum memorializes a family's struggles, and for a brief moment, brings them vividly to life.

Abstractions How abstract should a memorial be? The response varies with the proximity to the event. Survivors of a tragedy often raise potent arguments for realistic monuments that appropriately memorialize their lost loved ones. They belong to the camp that views the memorial as a "witness and reminder," says Young. A review of recent monument making in Washington, D.C., however, raises questions about the literal. The Korean Monument, for example, depicts a squad of soldiers in bronze, but their representation, unfortunately, makes them appear lost, and the meaning of the war becomes compromised as we confront the limitations of the objects themselves. The words and spaces and elementary materials at Washington's FDR Memorial seem more potent than the sculptural figures meant to recall Depression hardship. Imagination trumps the literal.

"WHEN WE ... DON'T COME TO TERMS WITH THE MEANINGS OF EVENTS, THOSE MEANINGS GO UNDERGROUND." —VICTOR IANNUZI

Touch and feelings Memory and the locus of emotions can be unlocked by the senses. Tactility, for example. How many of us have reached the Vietnam Memorial Wall to rub the names of lost friends with our own hands? Water, in particular, represents the mythic veil between the real and spiritual realms. Fire, such as the eternal flame at John Kennedy's simple grave on the Arlington hillside, or present in Hindu cremation, conjures up transformation. Moving water moves the hearing, which affects the mind: calming in a fountain, or churning as it falls with a cavernous, preternatural force in Tadao Ando's work at the Sayamaike Historical Museum near Osaka.

From Ground Zero Since September 11, the process of memorial making has already shifted from the individual to the institution. While countless little altars, handmade signs, poems mounted to fences, and photographs once sprang up across the city—at Union Square, at Brooklyn's Promenade, at Grand Central—the fire from a thousand candles is beginning to be extinguished. Even the number of poignant obituaries of the deceased in *The New York Times* is diminishing with each week.

With the removal of the last structural column from the devastated site, we are entering a new phase, searching for an appropriate memorial for a cataclysmic event that tore at the heart of a city, took almost 3,000 lives, and wrenched New York's optimistic spirit. How will the city respond? With monument or memorial? With literal interpretation of events? With knowledge of and accommodation to change?

Victor Iannuzi, an interpersonal psychoanalyst, warns that whatever happens, we must reconcile with the meaning of the event. If not, "those meanings go underground—they go into our unconscious, where they wreak havoc." The answer will depend on who tells the story, and how responsive those in power prove to an event larger than themselves. ■

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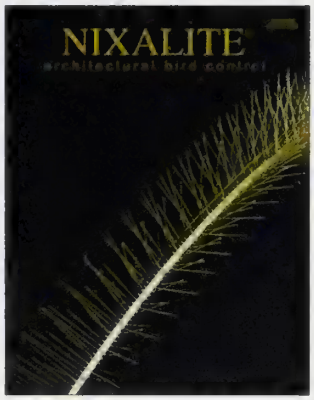


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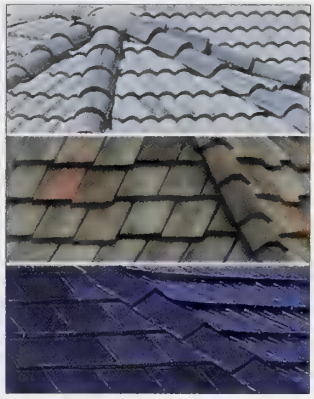


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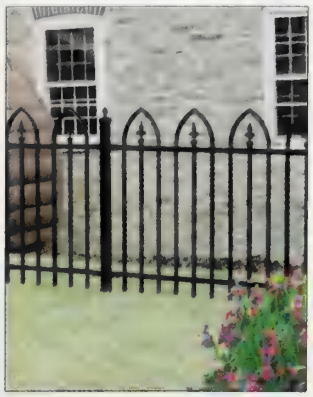


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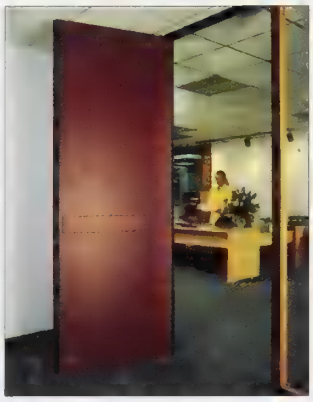


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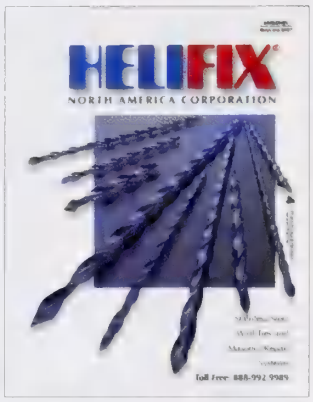


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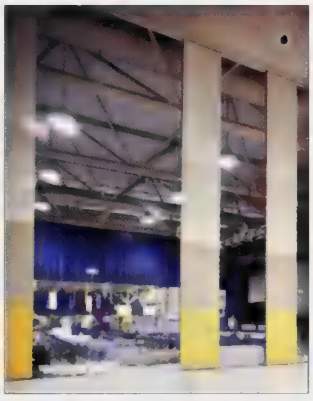


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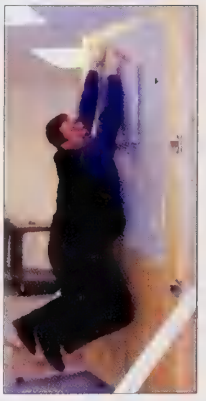


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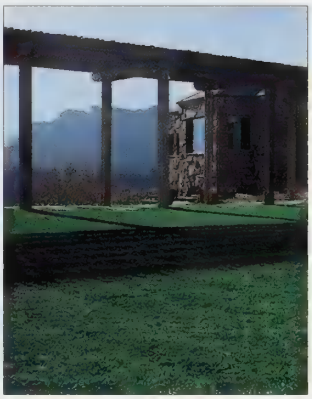


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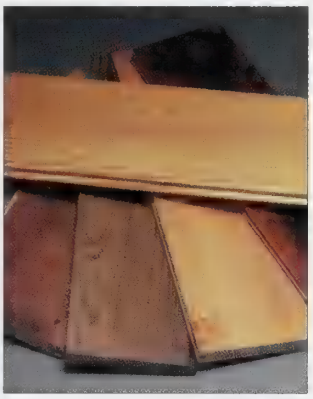


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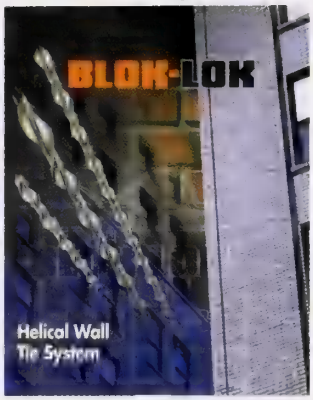


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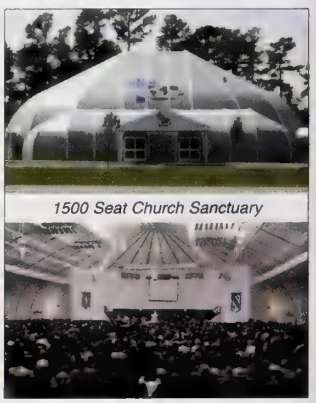


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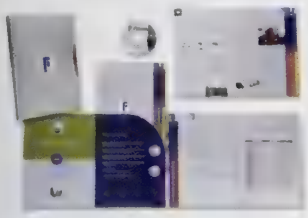
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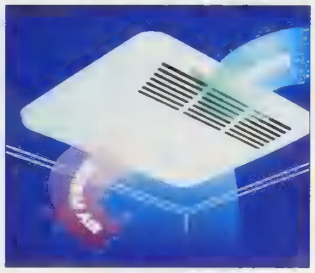


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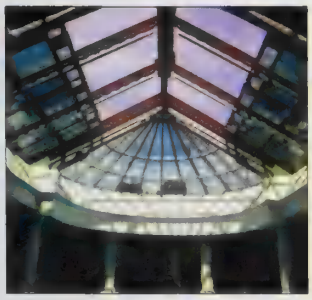


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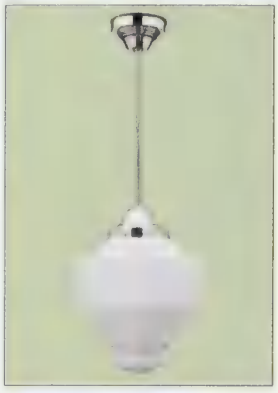


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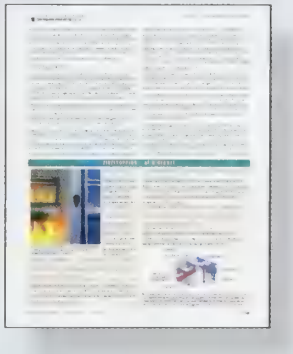
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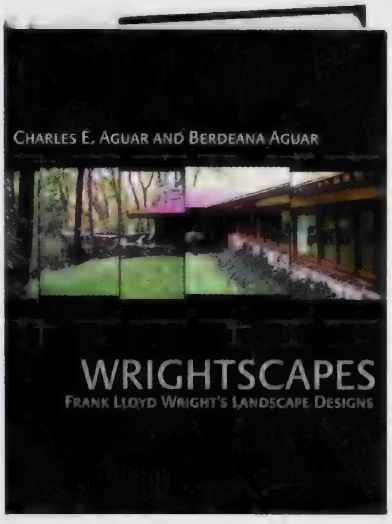
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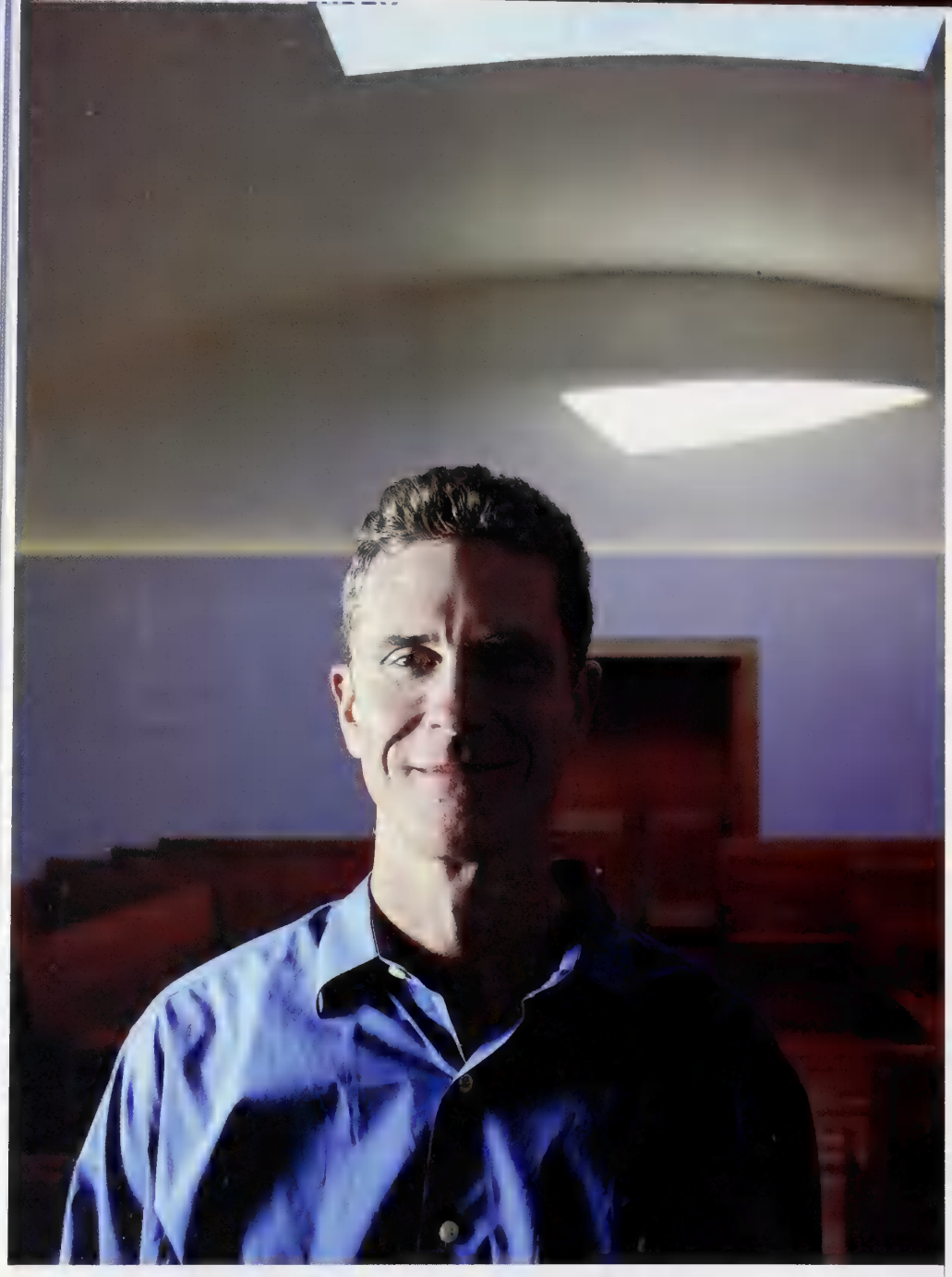


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Frank "Chip" Briscoe: Texan, preservationist, activist

Interviewed by Deborah Snoonian, P.E.

Frank "Chip" Briscoe has politics in his blood and preservation on his mind. Born to a Texas political dynasty—his father was a district attorney, his cousin a governor—he got his feet wet last spring by challenging the congressional seat held by House majority whip Tom DeLay (he lost the Democratic primary by a razor-thin margin). In April, he visited Pakistan, where he has been working with an international team to uncover a 4,500-year-old city. All this while working for veteran Houston builders W.S. Bellows, which built the Live Oak Friends Meeting House (above). Trained in historic preservation at Cornell, Briscoe and his wife live near Houston in a family farmhouse he's restored himself.

Q: *What are the goals of your work in Pakistan?* My primary role is to work with the Pakistanis, through UNESCO [United Nations Educational, Scientific and Cultural Organization] to assist with the conservation of the ruins of Moenjodaro. Moenjodaro is one of the capitals of the Indus Civilization, in the valley of the Indus River. I've been going there since 1995. It's an enormously important place in the history of civilization. It's the oldest planned city in the world and the largest Bronze Age city that we know of. Its water distribution system was the most advanced of its time and included indoor plumbing and one of the first uses of wells. We believe Moenjodaro and its sister capital, Harappa, are the first places in the world where baked industrial brick was used.

Only about 10 percent of the site has been excavated, and there's a prohibition on further excavation until the exposed ruins are stabilized. We still have a lot to learn about the way the city was planned. For instance, we haven't found definitive evidence of any kind of defense structure, which is interesting, because the Indus River was a transportation corridor.

What was your latest visit like, given recent events? People here thought I was crazy to go. But I've known the team working there for quite some time now, and I've always been very warmly received. My relationship with them hasn't changed. It's very satisfying to be involved in this project. I hope to stay involved if the political situation allows it.

Why did you decide to run for Congress? I ran primarily to promote a smart-growth agenda for my district. We've got to be among the worst offenders in terms of the way resources are used here. It's deplorable that we're not even beginning to work toward sustainable growth. Traffic congestion and sprawl have gotten terrible. For instance, there's a proposed expansion of the Katy Freeway that connects Houston to its western suburbs. It's now about 13 lanes wide; the plan is to almost double it, with all passenger vehicles, no plans for public transportation. There's growing opposition to the lack of transit options, and it's supported in part by air-quality standards that have to be considered when you widen freeways.

We also need to be much more considerate of the environment when we design and build things. I'm looking forward to being part of the move toward sustainable design in my job as a builder.

Would you run for office again? I would consider it, although I don't have any plans to. Running for office was a wonderful experience. I met a lot of people doing very important work. Politics was always a very personal thing to me growing up, because of my family's involvement. What pushed me to run was that I was really riled up after September 11, among other things. I hope it doesn't take something like that to make me try it again. ■

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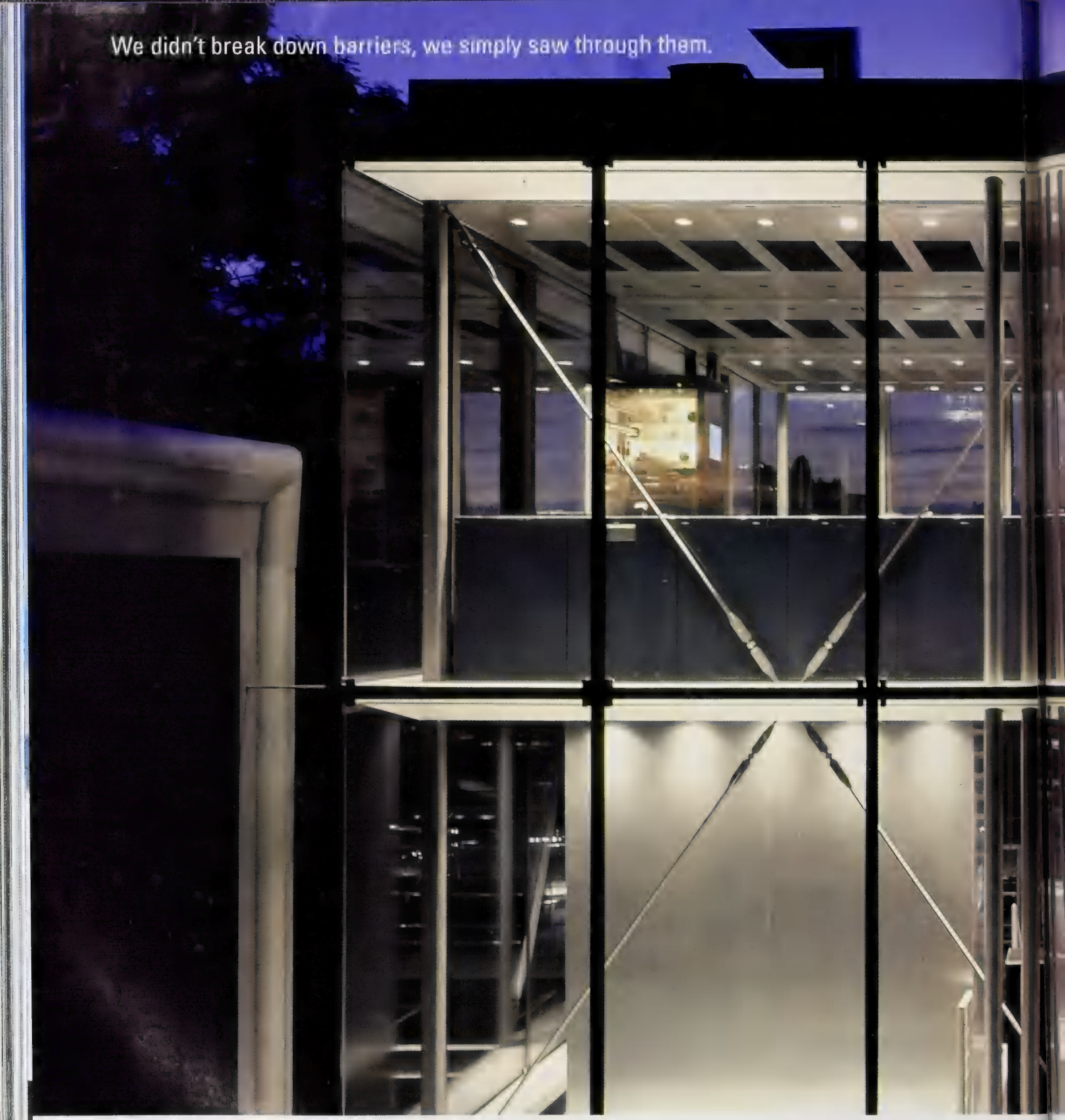
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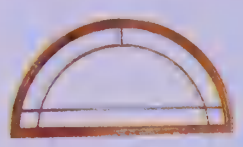
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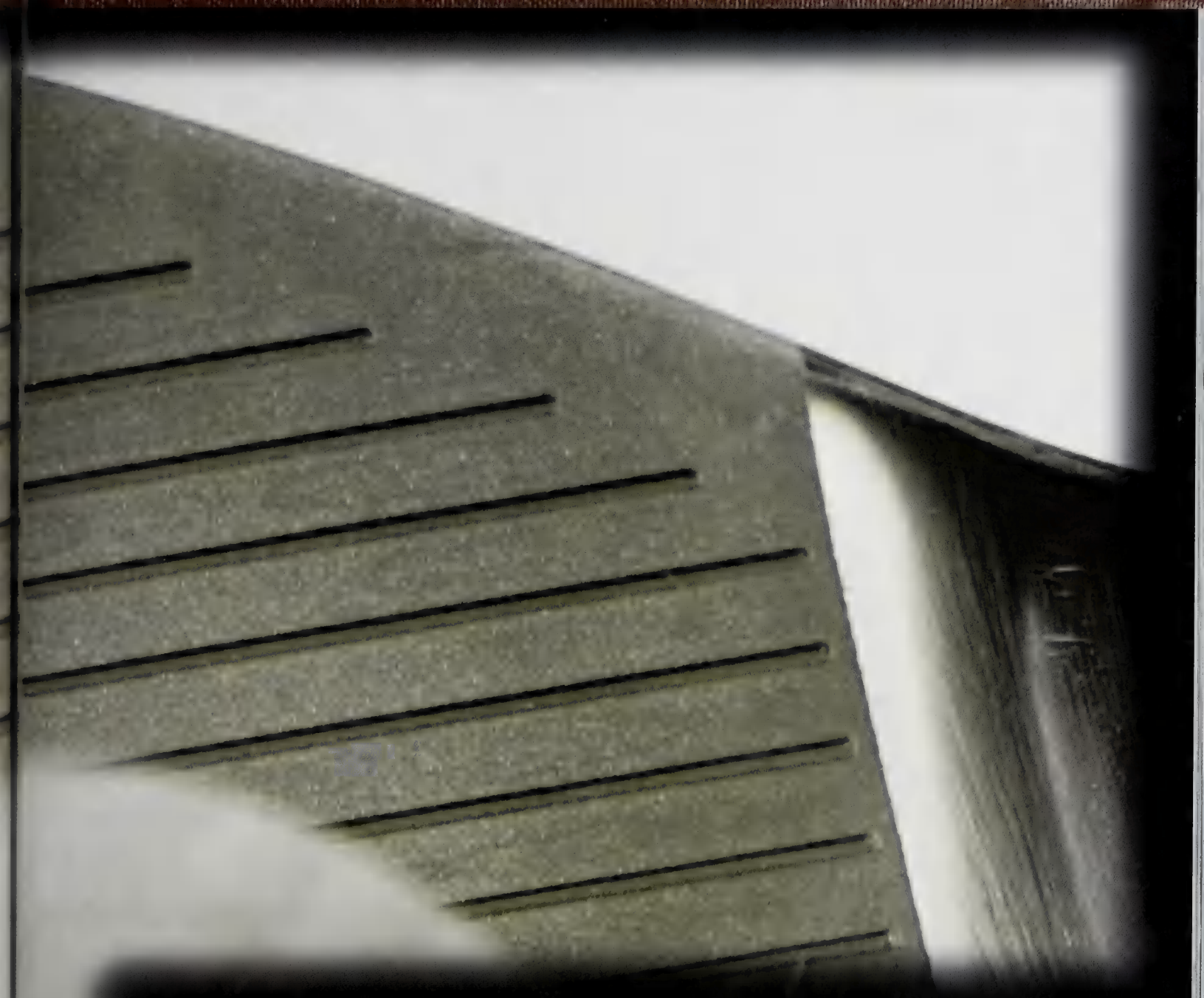
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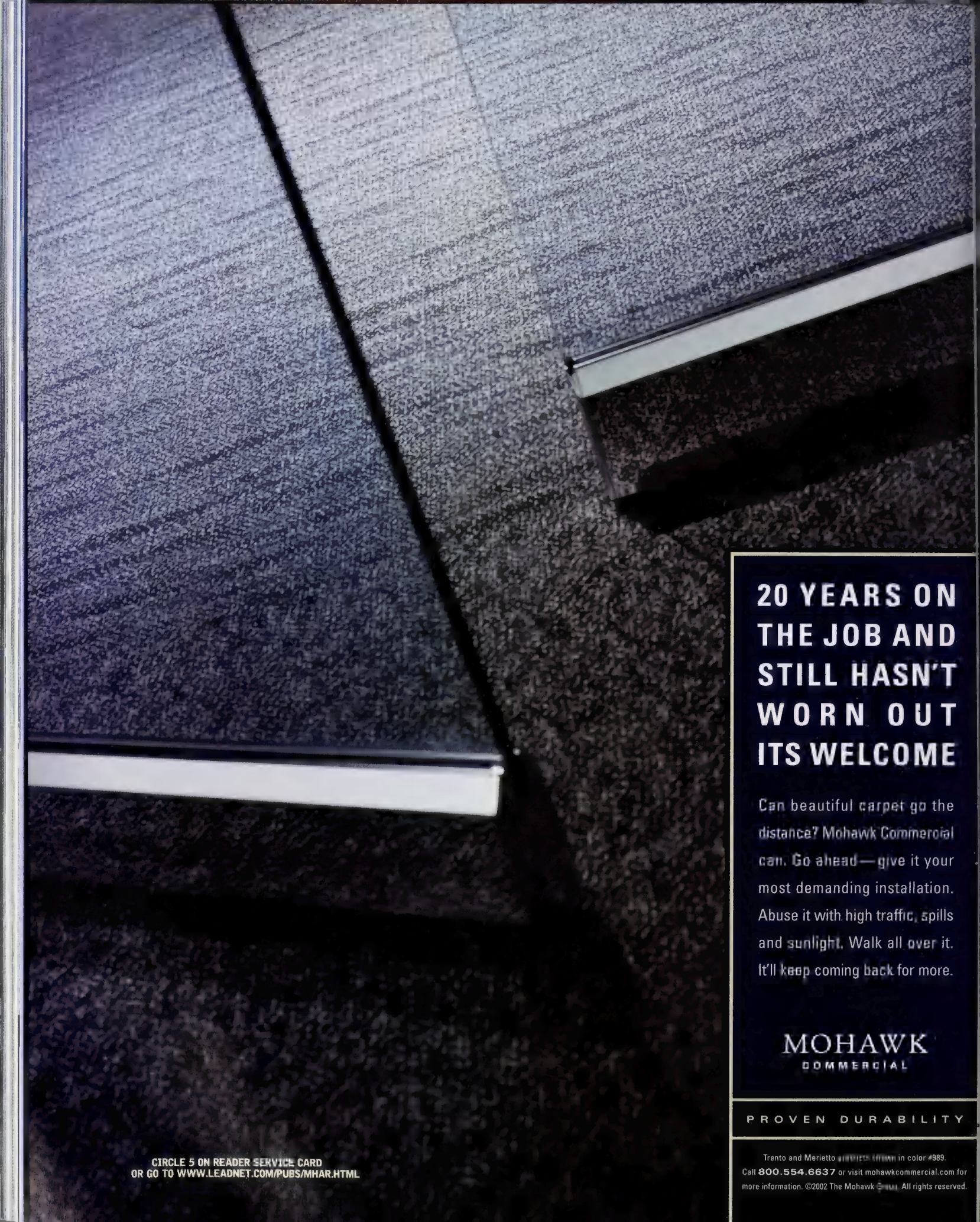
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Project Portfolio


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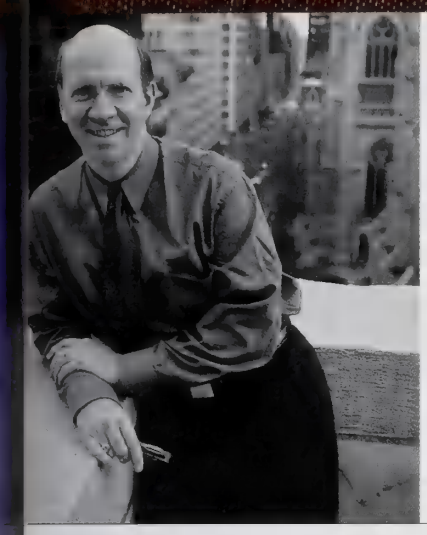
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Editorial

By Robert Ivy, FAIA

One primary lesson from the design studio comes hard for the diligent: The best plans do not always follow the rules. Good students have been taught since kindergarten to color within the lines and to turn in assignments on time; when the brilliant designer in any class saunters in with a scheme that blows the room away, yet violates the program, debate quells. Once a great plan appears, every juror or fellow student can acknowledge the power of the idea, no matter how errant the method: Great ideas attract us with their own energy.

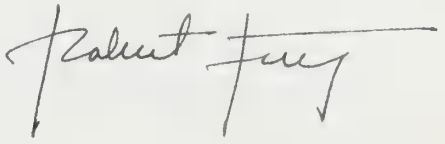
Unlike the design studio, which results in a mere grade, the stakes for the design of the World Trade Center site in New York are enormous and of lasting consequence. Some of the issues may be analogous, however; in particular, how programmatic expectations affect all planning. The designers of the proposed master plan had been tasked by their client, the Port Authority of New York and New Jersey with the Lower Manhattan Development Corporation (LMDC), with a riddle that loomed like the former twin towers: produce six independent schemes, each of which must return 11 million square feet of office space to downtown Manhattan, retain much of the actual site as memorial, interweave its architecture with massive infrastructure, and create a new vision for the city under intense public and political scrutiny—all within eight weeks.

Then the client weakened the architects' already tenuous position by inserting four schemes by others among the six, apparently hoping that no one would notice. We all found out. The results came to light at a press conference on July 16, followed by a firestorm of critical analysis in the media. By adhering to the client's demands, all six posited related solutions, arraying tall towers in a perimeter around an open urban space, with variation apparent in memorial sites, in street configuration, and in designation of certain structures as signature buildings. Keeping to the rules meant moving the chess pieces around, with little opportunity for modulation or change.

The Port Authority and LMDC called for public response on July 20. More than 4,000 representatives, who convened at an excellent town meeting called "Listening to the City," held at New York's Javits Center, answered loud and clear. Moving among the 500 tables set up for discussion and response, this mega-jury, which included ordinary folk, planners, firemen, and survivors, spoke with one voice. Time after time, in words varying in eloquence yet consistent in intent, they connected with their fellow respondents to label the schemes underwhelming. They decried the rush to building, calling on the powers that be to change the ground rules by paying off the current leaseholder and reducing demands for office space. In addition, they suggested interlacing the district with housing to achieve a more vibrant city. The moment provided enlightened democratic engagement at the highest level.

Astonishingly, the public talked about design. Their voices varied as they waded into unfamiliar waters, but it was clear that they expected more; as reported in the press, the phrase was for a "more ambitious" plan. One table cited the "great minds" present in the city and suggested they be solicited for plans. Another mentioned the global implications of the events of September 11 and supported, as we have, an international competition to achieve a world-class result. The voting of the entire public body is reported in our news section and on our Web site, which offers a detailed reprise of the responses.

Great architecture rarely occurs by plebiscite. Master planning and architectural design result in different products and may demand different methods. Traditionally, greater public participation in the former case lays the groundwork for the quieter, more individualistic pursuit of the latter. To its credit, the Port Authority and LMDC stated that they had heard the concerns and would alter the program. However, the world awaits the brilliant scheme from the student who steps outside the prescribed bounds and persuades through the power of an idea. To date, we have been coloring within the lines.



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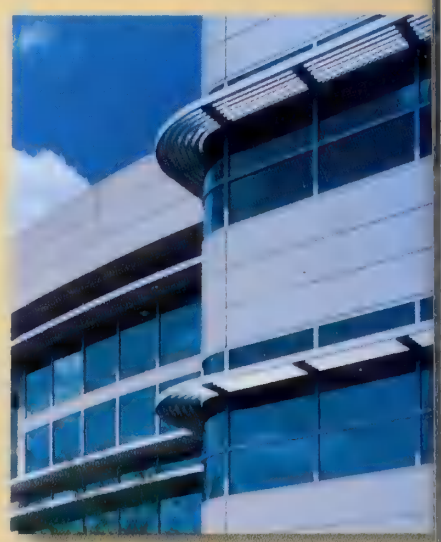
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Letters

Politics and architecture

Michael Sorkin presents a terrifying and disturbing view of urbanism and politics in the Middle East [Critique, July 2002, page 61]. His accurate description of damage to Palestinian urban infrastructure is enough to frighten anyone. His article is most disturbing, however, because Sorkin implies murdering innocent Israelis is a consequence of, or perhaps legitimized by, that nation's security measures. Nothing could be further from the truth.

Sorkin writes, "The horrendous bus bombings are both murder pure and simple and an assault on the most fundamental freedom of the city, just as the construction by the Israelis of … road networks divide the West Bank into a series of cantonments." No sentence linking terrorism with national defense can ever be justified or left unchallenged. His replay of Fatah and Hamas's moral-equivalency argument rings as hollow on the pages of ARCHITECTURAL RECORD as it does broadcast on Al-Jazira.

More than 50 years have passed since Israel's neighbors declared—in writing and in deed—the goal of ridding themselves of Jews in the Middle East. Israel's act of self-preservation, from building roads and fences in 1948 to reoccupying Palestine in 2002, isn't arrogance. It's survival. Perhaps the only thing more frightening than Israel's draconian security policy is their apparent need for it.

—Richard Buday, AIA
Houston

Provocative words

Under the guise of an essay purportedly on the subject of urbanism, Michael Sorkin has soiled the pages of a reputable architecture magazine with an undisguisedly biased, distorted, inaccurate, zealously anti-Israeli screed.

His first provocative sentence sets the tone, as he mischaracterizes the Jenin action as a premeditated "search-and-destroy" mission using bulldozers to create safe access for the Israelis, rather than a complex military operation into the heart of a densely populated area that had some 100 to 200 heavily armed Palestinian resistance fighters, mined streets, and over 50 houses booby-trapped by the Palestinians themselves.

How sympathetically Sorkin paints a picture of "oppressive security delays" and "draconian and humiliating security arrangements" causing the Palestinians to have a longer than usual commute time, without mentioning, of course, the reasons such measures are in place: nonstop terrorist attacks on Israelis for the past 20 months.

How dare Sorkin justify the "murderous rage of the Palestinians" as simply the result of settlement building activity. Who in this post-9/11 world would possibly draw a moral equation between "the horrendous bus bombings" and the construction of private road networks? Where does he get off depicting the Israeli highway system as an "oppressive network" having a "sinister dimension"?

I strongly protest this malicious, hateful article.

—Judy Marks, Hon. AIA
Silver Spring, Md.

A different interpretation

I was very disappointed that William Saunders's scathing commentary on Christopher Alexander's latest book, *The Nature of Order, Book One: The Phenomenon of Life*, failed to meaningfully discuss the actual substance of the book, and instead chose to criticize the writing style and the "psyche" of the author [Commentary, May 2002, page 93]. In large part, *The Phenomenon of Life* is a book that addresses the concepts of value, quality, and judgment in architecture.

Based on years of experiments, observations, and research, the thesis of *The Phenomenon of Life* is that each physical thing in the world has a certain inherent degree of life to it, and that this degree of life can be felt and measured by each of us as an objective quality. Yet, instead of commenting on the main content of these findings, Saunders chooses to evade discussing the issues of value and quality in architecture by misrepresenting Alexander's thesis, then attacking it for what it is not. Saunders states at the end of his commentary, "From then on, [Alexander] knew that he was the measure of all things"—a complete misinterpretation. What Alexander puts forth again and again throughout the book is that all of us can use ourselves as a measuring device to assess the degree of life of a place, and that there is overall consensus across these individual judgments. By paying attention to this response, we as architects can better create spaces that actually enhance the "life" of a particular place, as well as the lives of the people who will inhabit it.

—Susan Ingham
Seattle

Good ideals

Bravo for Bob Ivy's editorial in the June issue, "Is Idealism Dead?" [page 15]. Social consciousness is well and alive among architects throughout the world. It is befitting to read in the same June issue of ARCHITECTURAL RECORD that an American architect, Steve Brooks of OZ Architecture [News, page 24], volunteered to travel to Kabul to offer his time and expertise to assist the Afghan government in the reconstruction process.

I have recently, after 32 years, visited Kabul to assist the Afghan Assistance Coordination Authority (AACA). I volunteered to help the agency in infrastructure assessment and architecture and urban-planning training for personnel in the Ministry of Housing and the Department of Building and Town Planning. Most of Kabul city is devastated, including its physical infrastructure, beyond imagination. Also, the city, once a place of living, working, and pleasure, is now overcrowded by thousands of returning refugees and fortune hunters. The air is horribly polluted by smog and dust and debris from fallen buildings. There is also infested open sewage and shortage of clean water.

The interim government agencies are turning to the international community, especially to architects, planners, engineers, social scientists, educators, and investors to come up with humanitarian, but permanent, solutions. The government is planning for a five-day symposium in Kabul in September to discuss and review the current conditions. Interested individuals or groups may contact me or the Afghan embassies in their respective cities. This is a great opportunity to extend our spirit of "Idealism."

—Mehdi Sabet, AIA
School of Architecture and Design, American University of Sharjah
Sharjah, United Arab Emirates

Corrections

The July 2002 issue [News, page 32] incorrectly refers to Enrique Norten's Brooklyn Public Library as his first commission in the United States. Also in July, in the photo caption on page 86, the Korean War Memorial was designed by Cooper-Lecky Architects, not Maya Lin, and the Brion Cemetery was designed by Carlo Scarpa. The bombing of the Oklahoma City Federal building occurred in 1995, not 1993 [caption, page 121].

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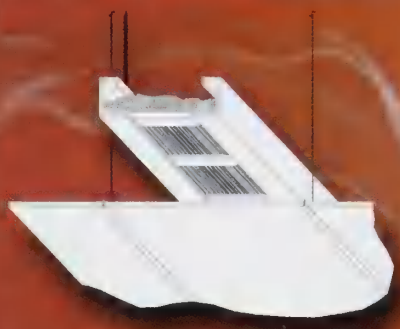
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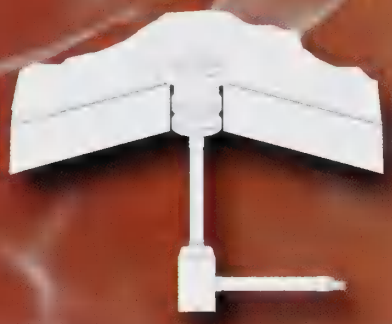
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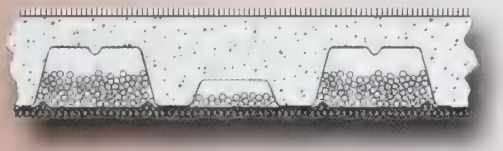
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Record News

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SPECIAL REPORT

Initial WTC plans raise process, program, and vision questions

Disappointment. That was the resounding sentiment of the local and national press and New York citizens in the days following the July 16 release of the six concept plans for the World Trade Center (WTC) site. Now that the public has seen something tangible to consider, debate surrounding Lower Manhattan's future, and criticism of the planning process, has kicked into high gear.

At a July 20 public input session called "Listening to the City," more than 4,000 people collectively voiced mostly negative feedback: The plans are unimaginative for New York and too similar. Attendees also feared that officials were moving forward too quickly no matter what feedback was given. As the press and public described the six plans as somewhere between leaden and dull, at best, what was most clear at press time in late July was that the Port Authority, with the Lower Manhattan Development Corporation (LMDC) and leasehold-

"Memorial Plaza," Concept Plan 1 of 6
- Designed by Cooper Robertson & Partners (Brookfield Properties, client).
- 8-acre plaza with a memorial/cultural building on the western edge.
- 18.1 total acres of new public space and grand promenade.
- Greenwich Street extended through site; Fulton and Cortlandt Streets extended partially through site; express lanes of West Street are submerged.
- 100 feet of West Street reclaimed at grade for open space and museum facility.
- 5 towers (1 at 79 stories, 2 at 67 stories, 2 at 62 stories).
- 1,500-foot-tall skyline element.

"Memorial Square," Concept Plan 2 of 6
- Designed by Beyer Blinder Belle.
- 10-acre square, with memorial/cultural building on western edge.
- Public arcades and rooftops overlooking square; cultural district south of site.
- 24.1 total acres of public space, including promenade.
- Liberty Street green corridor from Broadway to waterfront.
- Greenwich Street extended through site; West Street submerged in tunnel.
- Four towers (1 at 80 stories, 2 at 70 stories, and 1 at 56 stories).
- 1,500-foot-tall skyline element.



SPECIAL REPORT

(continued from previous page)

ers Larry Silverstein and Westfield America, will be compelled to reconsider programmatic needs and timing. The anticipated release of three revised plans, which was scheduled for September, will likely be pushed back until after the November election, when New York Governor George Pataki, who controls the Port Authority with New Jersey Governor James E. McGreevey, will be up for reelection.

Billie Tsien, AIA, the only architect on the LMDC board of directors, was encouraged by the amount of early feedback, even though much of it has been negative. "Everything should be questioned, including the parameters that generated the six plans," Tsien told RECORD. "I want people to look at this and ask, 'What's missing? What's too much? And what rules are wrong?' "

Program questions

The six plan alternatives were unveiled at a July 16 press conference in Federal Hall, just blocks from the WTC site. Before the plans were presented, however, the public generally expected them to cover a range of programmatic options, not only the uses that had been on the site. All six plans were based on one program that included all of the components that Larry Silverstein had in his lease with the Port Authority, in addition to a memorial, green space, and cultural facility.

In the program, the Port Authority called for a permanent memorial and public open space, cultural and civic institutions, 11 million square feet of commercial office space, a 600,000-square-foot hotel (the size of the destroyed Marriott hotel), 600,000 or more square feet of retail (to replace the 430,000 square feet destroyed), a PATH train and mass-transit hub, a bus facility, and a Con Edison substation. The LMDC's primary additions to the program were a promenade along West Street and housing.

New York architecture firm Beyer Blinder Belle (BBB) was selected by the Port Authority and LMDC in May to develop the master plan. In a RECORD interview in early June *(continued on page 26)*

"Memorial Triangle," Concept Plan 3 of 6

- Designed by Beyer Blinder Belle.
- 5-acre triangular open space; memorial/cultural facilities with a public pavilion.
- 13.2 acres of total public space, including streets, sidewalks, and public arcades.
- Elevated pedestrian deck over West Street to the Winter Garden.
- Greenwich Street goes through site; West Street at grade with pedestrian deck.
- 6 towers (1 at 85 stories, 1 at 61 stories, and 4 at 59 stories).
- 1,500-foot-tall skyline element.
- Potential residential development south of Liberty Street.

"Memorial Garden," Concept Plan 4 of 6

- Designed by Skidmore, Owings & Merrill (Larry Silverstein, client).
- 4-acre open space; memorial or cultural facilities in the site's southwest corner.
- 6.8 acres of new public space, including streets, sidewalks, and public arcades.
- Greenwich Street extended through site; Fulton Street partially through site.
- West Street at grade with pedestrian bridge.
- 5 towers (1 at 80 stories, 2 at 66 stories, 2 at 50 stories).
- 1,500-foot-tall skyline element.
- Potential residential development south of Liberty Street.







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SPECIAL REPORT

(continued from page 24)

[July 2002, page 23], BBB partner John Belle, FAIA, said, "We'll look at a wide range of ideas that will absolutely include a multitude of uses and a variety of quantities of uses." The planners' hands were tied, though, because the Port Authority called for one set of uses with little variation in quantity.

When each of the six schemes showed 11 million square feet of office space, immediate questions were raised in New York, where, according to Cushman & Wakefield, there is now 12.5 million square feet of vacant office space downtown, compared to 3.9 million square feet vacant in late 2000. A July 17 *New York Times* editorial that decried the plans said, "What these proposals demonstrate most conclusively is that nothing memorable can be done in Lower Manhattan if the Port Authority insists on reclaiming every inch of commercial space it controlled before September 11." After the July 20 public session in which many citizens questioned the need for 11 million square feet of office space, Joseph J. Seymour, the Port Authority's executive director, said his agency would reexamine office-space requirements for the site.

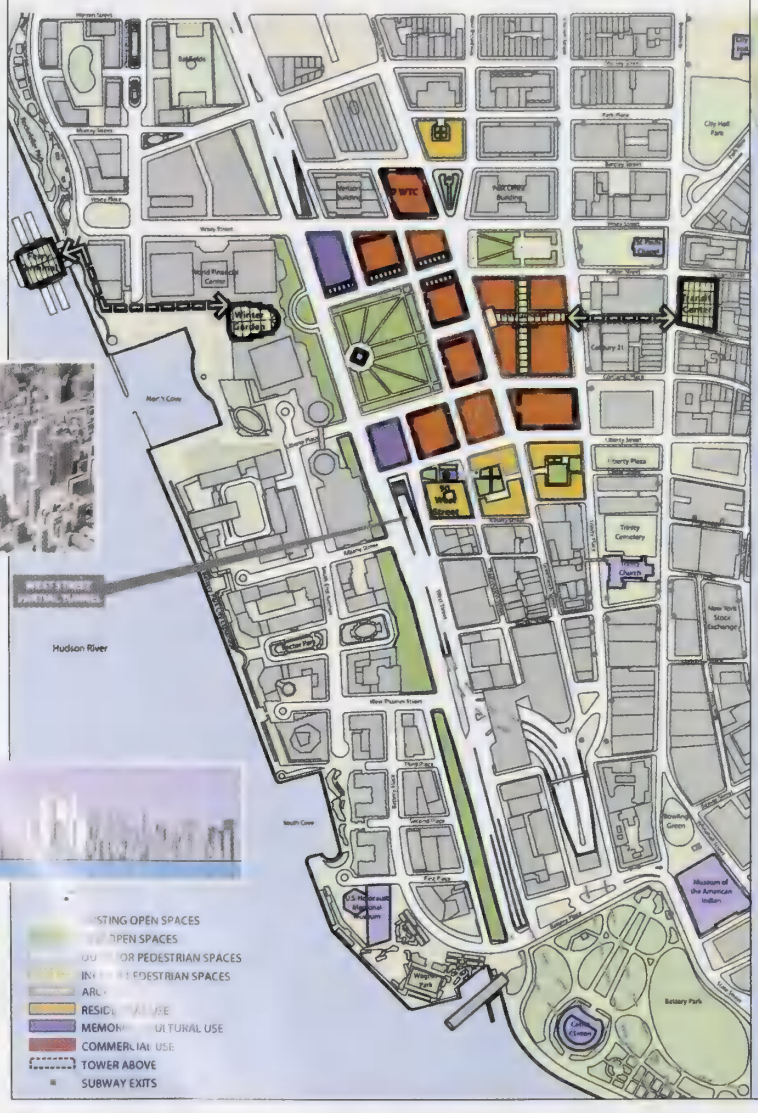
What about housing?

Five of the six plans show future residential development south of the WTC site below Liberty Street, but none of the plans show housing on the WTC site itself. Under current rules, the Port Authority cannot control property that includes housing. Three days after the plans were unveiled, Mayor Michael Bloomberg said he would like to see considerably more housing in the plans. Ric Bell, FAIA, executive director of the New York chapter of the AIA, expressed his own frustration concerning housing: "One thing that I thought was very sad is that no one, whether at the LMDC or certainly the Port Authority, got over this procedural hang-up about not building housing on the site."

Other potential uses that have been discussed publicly by various civic interest groups but did not appear in the *(continued on page 28)*

"Memorial Park," Concept Plan 5 of 6

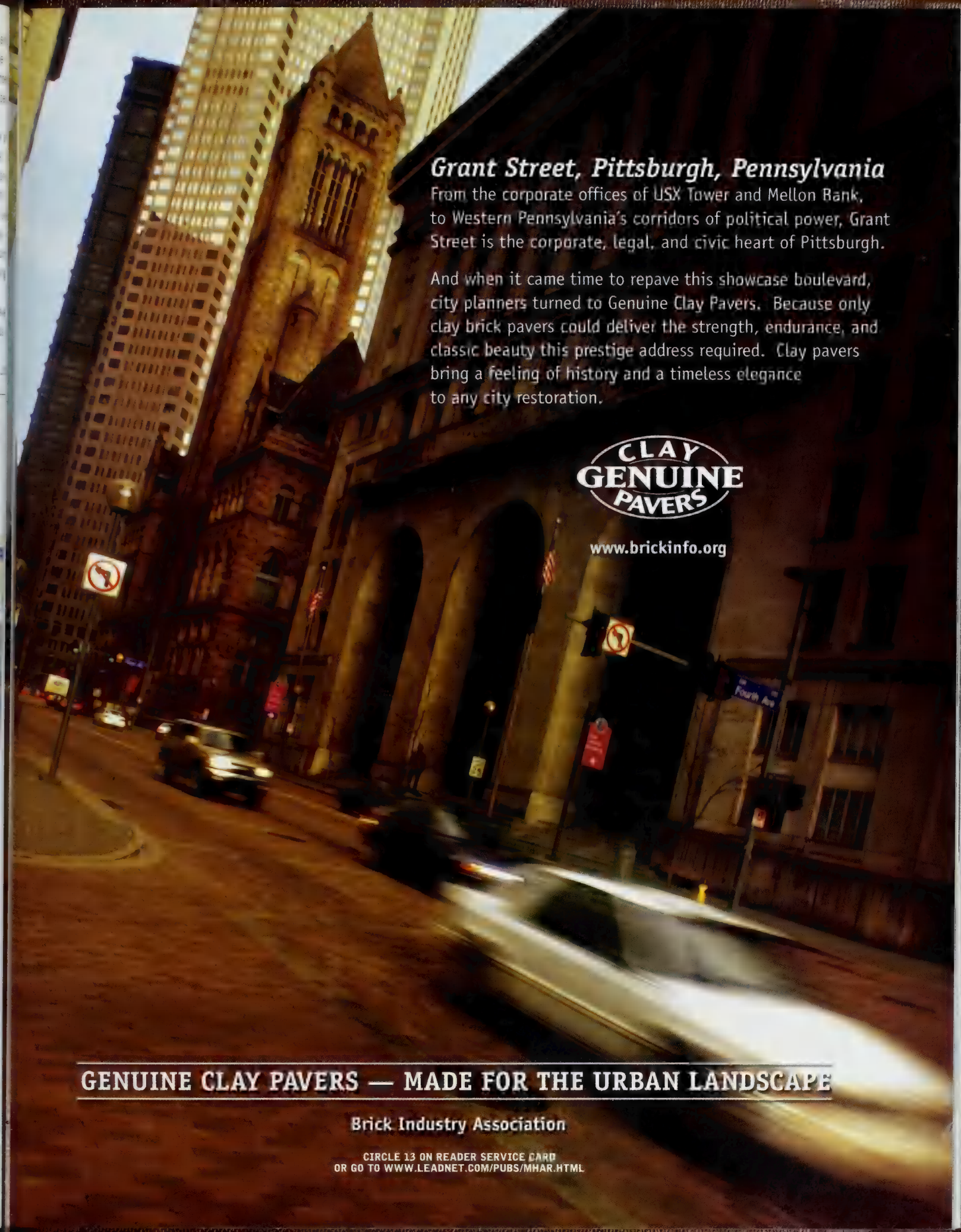
- Designed by Peterson/Littenberg Architecture & Urban Design (for LMDC).
- 6-acre park partially situated on a deck over West Street.
- 14.4 acres of new public space, including new streets, public square, arcades, and an enclosed galleria.
- Fulton and Cortlandt Streets extend to the World Financial Center.
- Greenwich Street extends through the site with building frontages on both sides.
- 5 towers (2 at 72 stories, 3 at 45 stories).
- 1,500-foot-tall skyline element.



"Memorial Promenade," Concept Plan 6 of 6

- Designed by Peterson/Littenberg Architecture & Urban Design (for LMDC).
- Grand promenade connecting museum/cultural facilities on the site to Battery Park.
- Cultural and memorial uses on the western portion of the site.
- 27.7 acres of public space, including the grand promenade, new streets, public squares, arcades, and an enclosed galleria.
- West Street tunnel from Battery Park to Vesey Street (local traffic at surface).
- 6 towers (2 at 63 stories, 4 at 32 stories).
- Two 1,500-foot-tall skyline elements.




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Record News

OFF THE RECORD

The city of Chicago will install new [illegible]–designed bus shelters, news boxes, and other street furniture by year's end.

The New York City Landmarks Preservation Commission voted to allow the titanium canopy by [illegible] AIA, to stay on the roof of the Guggenheim Museum [June 2002, page 34] for six years.

[illegible] San Francisco–based firm, [illegible] Architecture and Urban Design, has merged with Philadelphia-based Wallace Roberts & Todd, WRT to become [illegible] WRT Comp[illegible].

The [illegible] Building Council has issued an update to its rating system of sustainable buildings, simplifying documentation requirements.

Ground breaking for the $200 million Renzo Piano addition to the Art Institute of Chicago [June 2001, page 33], initially planned for next January, will occur in late 2003 or early 2004, and the addition will likely open in 2007. The museum said further design development was needed.

Mayor James K. Hahn unveiled a $9.6 billion proposal to modernize Los Angeles International Airport.

The Museum of Natural History of Los Angeles County has chosen New York's Steven Holl Architects to design a $200 to $300 million renovation and addition. Holl was selected over four other finalists—David Chipperfield Architects (London); Foster & Partners (London); Herzog & de Meuron (Basel); and Machado and Silvetti Associates (Boston)—who were culled from an initial pool of 70 architects. A master plan will be unveiled in 2003.

Paul [illegible], a founding partner of San Francisco firm [illegible] Architects, died of colon cancer [illegible] 12 at age 50.

WTC Plan *(continued from page 26)*

plans include hospitals or biotech research facilities, schools, libraries, and spaces for large and small arts organizations, not just one cultural facility.

The programmatic requirements resulted in plans that, taken together, look strikingly similar. For the most part, all of the schemes show buildings developed along the eastern edge of the site and open spaces of varying configurations and sizes on the western half of the site where the towers once stood. The footprint of the WTC towers is left as open space on four of the six plans. All six have an intermodal transportation center on the eastern edge of the site along Church Street, and all six have Greenwich Street connected through the site from north to south.

Frustrating task

Beyer Blinder Belle's role was diminished from the start. At the client's insistence, the six plans are really the work of four different architecture firms. Only two of the six plans were BBB's original work—Memorial Square (page 23) and Memorial Triangle (page 24). Cooper, Robertson & Partners developed Memorial Plaza (page 23) for its client, Brookfield Properties, which owns the World Financial Center just west of West Street. Skidmore, Owings & Merrill (SOM), working for Larry Silverstein, designed the Memorial Garden plan (page 24). Peterson/Littenberg Architecture & Urban Design, which has been an in-house consultant to the LMDC for more than five months, designed Memorial Park and Memorial Promenade (both on page 26). At press time, the role of Cooper Robertson, SOM, and Peterson/Littenberg, if any, in further plan development was unclear.



Jack Beyer, FAIA, presents the plans at a July 16 press conference.

At the July 20 public session, citizens rated the six schemes from "excellent" to "poor." Each of the plans received a "poor" rating from between 41 percent (Memorial Promenade) and 62 percent (both Memorial Triangle and Memorial Park) of the attendees. The crowd cheered when the negative scores were shown, and comments displayed ranged from "Feels like an open casket" to the ultimate New York City insult: "Looks like Albany."

Tsien, hoping for an informed and thoughtful response, said, "If people don't say something strong—and that's what architects should be doing—then it's everybody's loss."

John E. Czarnecki, Assoc. AIA

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Canopy distinguishes Viñoly design for Tampa Museum of Art

New York architect Rafael Viñoly has unveiled a design for a new home for the Tampa Museum of Art, in Tampa, Florida, which will anchor the city's 28-square-block Cultural District. The most noticeable feature of the building's exterior, its canopy, forms a steel pergola that is, according to Viñoly, a sort of "shading device on an urban scale," extending 100 feet above the museum and over Ashley Drive. Viñoly is also considering taking advantage of the Florida sun by adding solar cells on the museum's roof. Ground breaking is expected in January 2003 for the $52 million museum, which will be completed by the end of 2004.



The 124,000-square-foot building will more than triple the museum's exhibition space at its current home on the Hillsborough River in downtown Tampa. Six levels of galleries and exhibition space will be included, with unobstructed views of the city. The museum will adjoin an enlarged waterfront park intended as the city's "front yard." Viñoly says, "We have given the city a more intimate connection to its waterfront with this design."

Tampa mayor Dick Greco was pleased with Viñoly's work. "What he's done is given us some drama at a low cost," Greco told the *St. Petersburg Times*. "The man has spent a lot of time and effort making this the 'Wow' I asked for." *J.E.C.*

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New York architects offer pro bono services for libraries



A number of New York architects donated pro bono services to an initiative to revitalize underserved public school libraries—the first of which were completed this year.

The Robinhood Foundation, an investment fund that partners with New York City antipoverty organizations, joined forces with the city's board of education to create L!brary—a project to promote learning in low-income neighborhoods by building high-quality elementary school libraries.

To highlight the importance of design, Robinhood recruited Henry Myerberg of Helfand Myerberg Guggenheimer Architects who, in turn, enlisted nine other firms to create the first 10 prototypes. To aid their efforts, the Robinhood Foundation secured $28 million from public and private sources, as well as $15 million in in-kind donations over the life of the initiative; these are to include books, computers, software, and architectural design. The first 10 prototypes—all double or triple the size of existing facilities—opened this spring. Another 20 are scheduled to open over the next two years.

Although each library offers space for class instruction, small-group gathering, and individual reading, firms came up with startlingly different designs. Tod Williams and Billie Tsien added a notably green ceiling and rows of clean bookcases to the Andrew Draper School library in Harlem, while Weiss/Manfredi provided undulating walls, textured curtain dividers, and playful signage to the library at P.S. 42 in Queens. Tsao and McKown created a learning space filled with colorful round pillows and nooks for more reclusive readers.

Other participating firms were Ronette Riley Architect, Deborah Berke Architect, Richard H. Lewis Architect, Paul Bennett Architect, Alex Gorlin Architect, and della valle + bernheimer design.

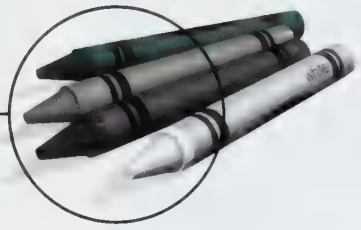




New York City public school libraries designed by (from top) Tod Williams Billie Tsien & Associates, della valle + bernheimer design, and Tsao & McKown Architect.

The new libraries will play a key role in an ongoing, comprehensive program. In addition to stocking libraries with books and computers, Robinhood is helping to develop school librarian training programs, engage schools, and help teachers to incorporate libraries into their curricula. Robinhood eventually hopes to provide well-furnished, well-stocked libraries for each of New York's 650 schools. *Tess Taylor*

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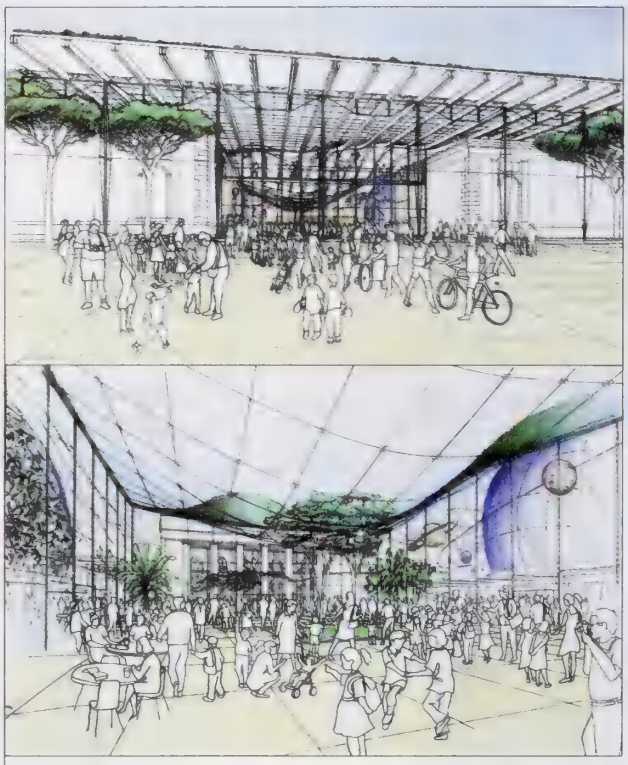
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Views of the proposed main entrance (top left) and the entrance to the aquarium from the piazza (lower left).

A roof of foliage covers Piano's California Academy of Sciences

Two years after selecting the Renzo Piano Buildings Workshop in association with Gordon H. Chong and Partners as the architects, the California Academy of Sciences has finally unveiled its plans for modernizing its earthquake-damaged and outdated 86-year-old complex in San Francisco's Golden Gate Park. In keeping with the spirit of the academy and its strong environmental mission, the design incorporates many green architecture strategies that Piano has been experimenting with, such as natural ventilation, sustainable materials, and roofs planted with vegetation.

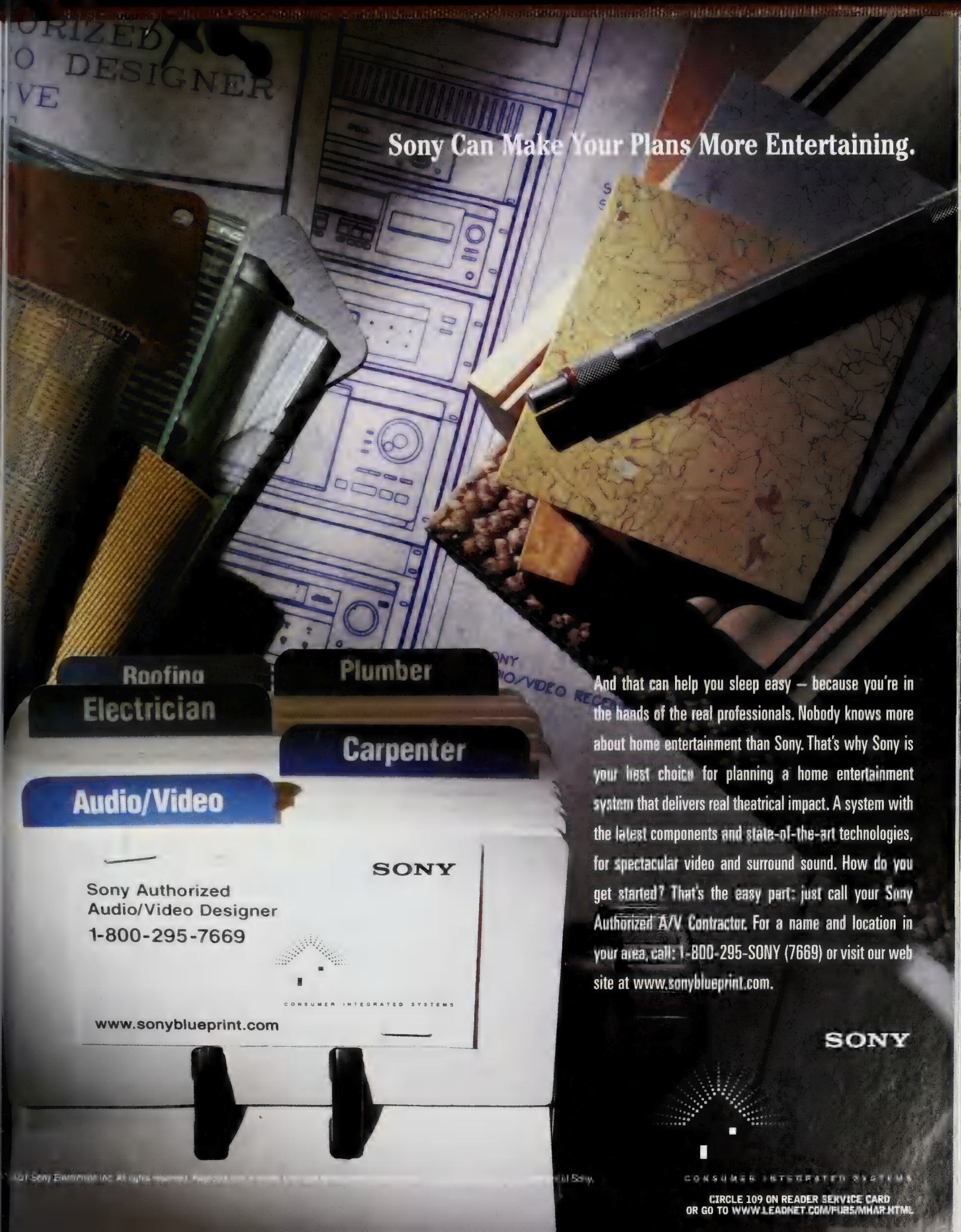
The unveiling has been highly anticipated because the Piano building will be located across a public concourse from Herzog & de Mueron's new de Young Museum, where construction has been delayed as locals debate the design's aesthetic merits. Will Piano's scheme generate debate?

The $370 million scheme for the academy surgically removes the numerous additions of the past 40 years, leaving the three oldest buildings that serve as the icons for the institution. These provide an armature for two parallel buildings that enclose a central space occupied by a new planetarium, a huge rain forest exhibition, a public piazza, a café and shop, and new exhibition spaces. While the building along the concourse houses public areas, the one opposite will contain new state-of-the art research facilities for the 100 natural scientists, administrative offices, and storage for the 18 million specimen collection. A single 180,000-square-foot roof planted with native vegetation undulates up and over the various spaces, unifying them and echoing the surrounding park landscape. The complex will include a basement, dubbed the "factory," that accommodates the technical and mechanical systems. Construction will begin in 2004, with a planned opening in early 2008.

"Buildings like this must be very good and very flexible machines," says Piano. "It is not really a building, but a place—a town with layers of history and accumulation. It is a place about the moral and ethical dimensions of people doing science." *Lisa Findley*



Sections through the California Academy of Sciences highlight the undulating roof and public spaces.



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Earth from Above lands in Chicago's Millennium Park





***Earth from Above* features Arthus-Bertrand photographs o stands designed by Doug Garofalo with Ammar Eldueini.**

Millennium Park, the still-unfinished Chicago park along Michigan Avenue just north of the Art Institute, is the site of a temporary exhibition of aerial photographs by Yann Arthus-Bertrand. *Earth from Above: A Photographic Portrait of Our Planet*, on display until September 15, includes 121, 4-by-6-foot images laminated to recyclable aluminum panels set on steel stands designed by Chicago architect Doug Garofalo in collaboration with Ammar Eldueini of Digit-all.

"The content has to do with perspective," explains Garofalo, who, with Eldueini, arranged the photos in seven parallel rows and developed a system of simple steel-tube supports and metal clips to hold the large-scale images without frames. The canted steel stands support an exposed conduit system and solar-powered striplight fixtures above each image. The lights visually link each stand and demonstrate the implementation of "green" design features. Chicago area utility Excelon sponsored the exhibition.

Each row is set at a progressively steeper angle—from 30 to 110 degrees off horizontal—so that portions of each image can be seen as part of a larger composition when viewed from the park's Michigan Avenue entrance. The installation creates its own metaphoric landscape of shifting perspective that reinterprets Arthus-Bertrand's particular photographic point of view. The images were taken from a helicopter during 3,000 hours of flying time over 100 countries. *Edward Keegan*

Plan anticipates more housing, office space in Chicago

"This is no little plan," boasts the preface to the new *Chicago Central Area Plan: Preparing the Central City for the 21st Century*. Issued by the city's Department of Planning and Development and Department of Transportation, the document outlines the accommodation of office and residential growth in downtown for the next 20 to 30 years.

Developed over the past two years at a cost of $500,000, the plan calls for more housing in anticipation of a downtown residential population increase from 83,000 to about 150,000 people by 2020. The area workforce is expected to grow from 650,000 to 900,000 in the same time period, and the plan includes an additional 40 million square feet of downtown office space. New parks are proposed, as well as a promenade along the Chicago River and a series of islands for recreation off the Lake Michigan shore. The islands are reminiscent of Daniel Burnham's plan of a century ago.

"This is a pro-growth plan," explains city-planning commissioner Alicia Mazur Berg. "The biggest change is the emphasis on the river as a spine." The scheme is part of Mayor Richard M. Daley's oft-noted effort to make Chicago a "greener" city.

The highest-density growth is projected for an area immediately west of the Loop, where a second contiguous transportation loop is cleverly planned by connecting branches of existing subway lines. Transportation improvements call for a more integrated system of commuter-rail, subway, and bus service. *E.K. and J.E.C.*



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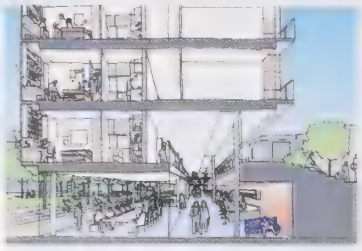
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Kohn Pedersen Fox scores second academic project in Oxford—a dormitory at St. Anne's

Adding a Modern building to Oxford University is a balancing act, says David Leventhal, principal in charge of design at Kohn Pedersen Fox Associates' (KPF) London office. KPF demonstrated its ability to find that balance with its first Oxford project—the Rothermere American Institute building (page 150)—and has recently won its second contract at Oxford for a dorm and lecture hall at St. Anne's College. KPF won the commission in a competition against British firms Dixon Jones, Rick Mather, Stephen Hodder, Alec French, and Evans & Shalev.

The four-story, 40,000-square-foot building will have 110 student dorm rooms and, at its base, three seminar rooms and a lecture theater. Staircases are placed at the far ends, as in a motel, because "it feels less institutional and is [the style] more typically used at Oxford," Leventhal says.



Public spaces with dorms above.

KPF's winning design is sympathetic to the older buildings near the university site without copying them, says Leventhal, who is serving as project architect on the project with Fred Pilbrow, an office director. KPF's design lines up the cornices of the new building with those of its southern neighbor, the 1937 Hartwell House designed by Giles Gilbert Scott, and has a Bath-stone exterior similar to the Hartwell House. A glass elevator shaft mirrors the height of a Hartwell House turret.

The building's southern facade is fairly uniform, but the northern facade is broken up into components about the same width as the neighboring Victorian villas to the north.

Like the Rothermere American Institute, this structure is designed to be energy-efficient. An air-distribution system heats and cools the ground floors, using ground water and a heat-recovery system.

The new St. Anne's building, as yet unnamed, is slated for completion in September 2004.

Jaan vanValkenburgh



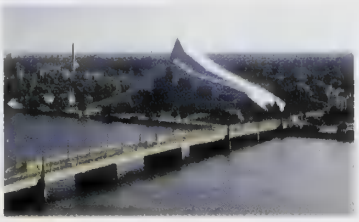
The four-story dormitory building will have one facade that is more varied (left) and one that is fairly uniform (right).



News Briefs

University of Detroit Mercy wins NCARB Prize The University of Detroit Mercy has won the inaugural NCARB Prize for Creative Integration of Practice and Education in the Academy. The $25,000 prize, sponsored by the National Council of Architectural Registration Boards (NCARB), honors the school that most creatively integrates architectural education with practice.

The University of Detroit Mercy worked with the Detroit Collaborative Design Center—a nonprofit organization founded in 1994—to take part in research on architectural design and neighborhood development. Students participated in a neighborhood design studio, worked as volunteers, conducted research, and contributed in an assortment of other roles to help the center. Five other schools, all receiving $7,500 awards, were honored: University of Pennsylvania, Miami University, Auburn University, Arizona State University, and North Carolina State University. *Sinan Schwarting*



The Latvian library design by Birkerts.

Birkerts's Latvian library gets go-ahead In a Latvian folk tale, a knight on horseback rescues a princess asleep atop a crystal mountain. The literary image is so familiar to Latvians, says Gunnar Birkerts, FAIA, that he designed the country's new national library in Riga as a 200-foot-tall glass peak. The Latvian parliament voted on June 13 to fund the project—which is expected to cost over $120 million—partly by privatizing the country's shipping industry. Construction of the library, in central Riga along the Dvina river, is set to begin in 2004, after more than a decade of financing-related delays.

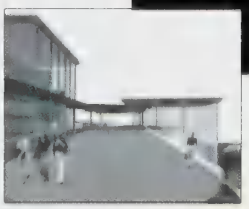
Birkerts, a Riga native, fled as a teenager during World War II and established a Michigan-based practice known for Expressionist forms, such as amoeboid galleries at the Corning Museum of Glass in Corning, New York. He has not yet built in his homeland.

Sheathed in silver-gray low-e panes, the craggy 500,000-square-foot structure will consolidate book collections and a folk music archive. "It's both a symbolic and a very practical building," Birkerts says.

At the Venice Biennale's Eighth International Architecture Exhibition this fall, Latvia will devote its gallery to drawings and models of the library. *Eve Kahn*

Voorsanger designs UVA museum New York architecture firm Voorsanger Architects has designed a new 80,000-square-foot home for the University of Virginia (UVA) Art Museum. The site is adjacent to the UVA Lambeth Colonnade (curving form in image below). UVA is currently raising funds for the building, which would include an auditorium and galleries. *J.E.C.*





The UVA Art Museum (left) will be adjacent to the Lambeth Colonnade (above).

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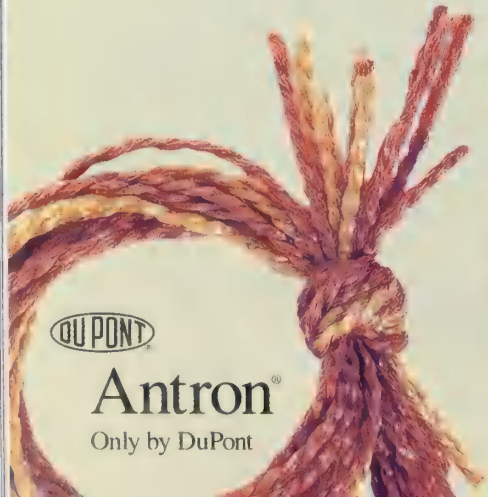
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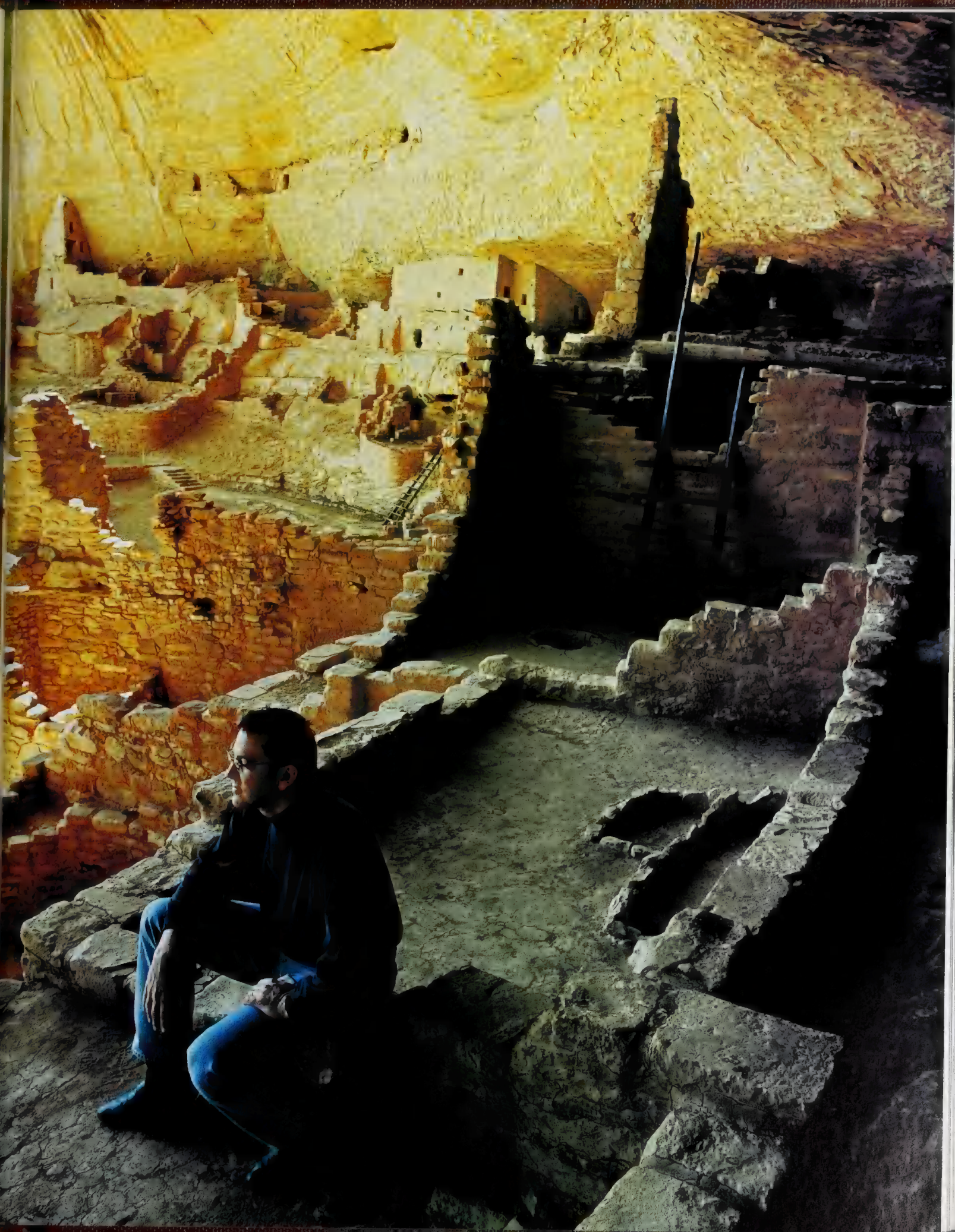
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Dates & Events

Ongoing Exhibitions

Three Nomadic Structures: Jean Prouvé and the Maxeville Years
New York City
Through August 15, 2002
This, the first exhibition of the French architect Jean Prouvé in the U.S., was initially scheduled to run only until May 10, but it has been extended. Prouvé has had something of a revival in recent years, and this exhibition offers a rare opportunity to see his work. At the Arthur Ross Gallery, Buell Hall, Columbia University. Call 212/751-6126.

Windshield: Richard Neutra's House for the John Brown Family
Washington, D.C.
Through August 18, 2002
An in-depth examination of Neutra's first project on the East Coast, completed in 1938. The show documents the creation of this home with examples of architect-client correspondence, original drawings, sketches, blueprints, home movies, photographs, and models. At the National Building Museum. Call 202/272-2448.

Helmut Jacoby: Master of Architectural Drawings
Chicago
August 31–October 27, 2002
Quite possibly the best known architectural renderer of the 20th century, Jacoby has worked for some of the brightest stars in architecture—from his earlier days with Philip Johnson, Eero Saarinen, I.M. Pei, Marcel Breuer, and many others to his later work with more international architects, such as Sir Norman Foster and Helmut Jahn. His work serves to document the evolution of architecture from the 50s through the 70s. At Kisho Kurokawa Gallery, Art Institute of Chicago. Call 312/443-3600.

Artists Imagine Architecture
Boston
Through September 2, 2002
The Institute of Contemporary Art, Boston opens an exhibition exploring the architectural model as sculpture. International artists investigate structure, social interactions, and scale through the examination of Modernist architecture projects. At the Institute of Contemporary Art. Call 617/266-5152.

Gerald Zugmann: Blue Universe
West Hollywood, California
Through September 8, 2002
This exhibition illustrates the decade-long collaboration between architectural photographer Gerald Zugmann and avant-garde Austrian architectural firm Coop Himmelb(l)au. At the Mak Center. Contact 323/651-1510.

Skin: Surface, Substance+Design
New York City
Through September 15, 2002
This exhibition skims the surface to explore the different ways skin is articulated in design. On display are a variety of objects and artifacts by such notable designers as Greg Lynn, Petra Blaisse, Ross Lovegrove, and Marcel Wanders, organized into five themes, each delving into questions of beauty, technology, and artificial life. At the Cooper-Hewitt, National Design Museum. Contact 212/849-8400.

Living in Motion—Design and Architecture for Flexible Dwelling
Weil am Rhein and Berlin
Vitra Design Museum, Weil am Rhein: through September 8, 2002; Vitra Design Museum, Berlin: September 21, 2002–January 26, 2003
This exhibition covers furniture and houses that reflect flexibility, multifunctionalism, and mobility, prime examples being Rietveld's Schroeder House, Shigeru Ban's Naked House, and Steven Holl's Fukuoka Apartments, among others. It covers a wide variety of cultures in its attempt to portray domestic flexibility. At the Vitra Design Museums, Weil am Rhein and Berlin. In the U.S., call 212/539-1900; in Europe, call 49 7621 702 3351.

Designing Oakland
Pittsburgh
Through September 22, 2002
This exhibition discusses Oakland—the neighborhood in Pittsburgh, not the city in California—and is the second of the series of *Pittsburgh Neighborhoods Projects* exhibitions organized by the Heinz Architectural Center. It tells the story of the evolution of the neighborhood from an urban getaway to a cultural center sharing the spotlight with downtown. At the Heinz Architectural Center in the Carnegie Museum of Art. Call 412/622-3131 or visit www.cmoa.org.

Visions from America: Photographs from the Whitney Museum of Art, 1940–2000
New York City
Through September 22, 2002
The museum's first photograph exhibition comprising work from its own permanent collection consists of images by established as well as emerging artists whose photography has been collected by the Whitney over the past 11 years. The show runs through the summer. At the Whitney Museum. Call 212/570-3633.

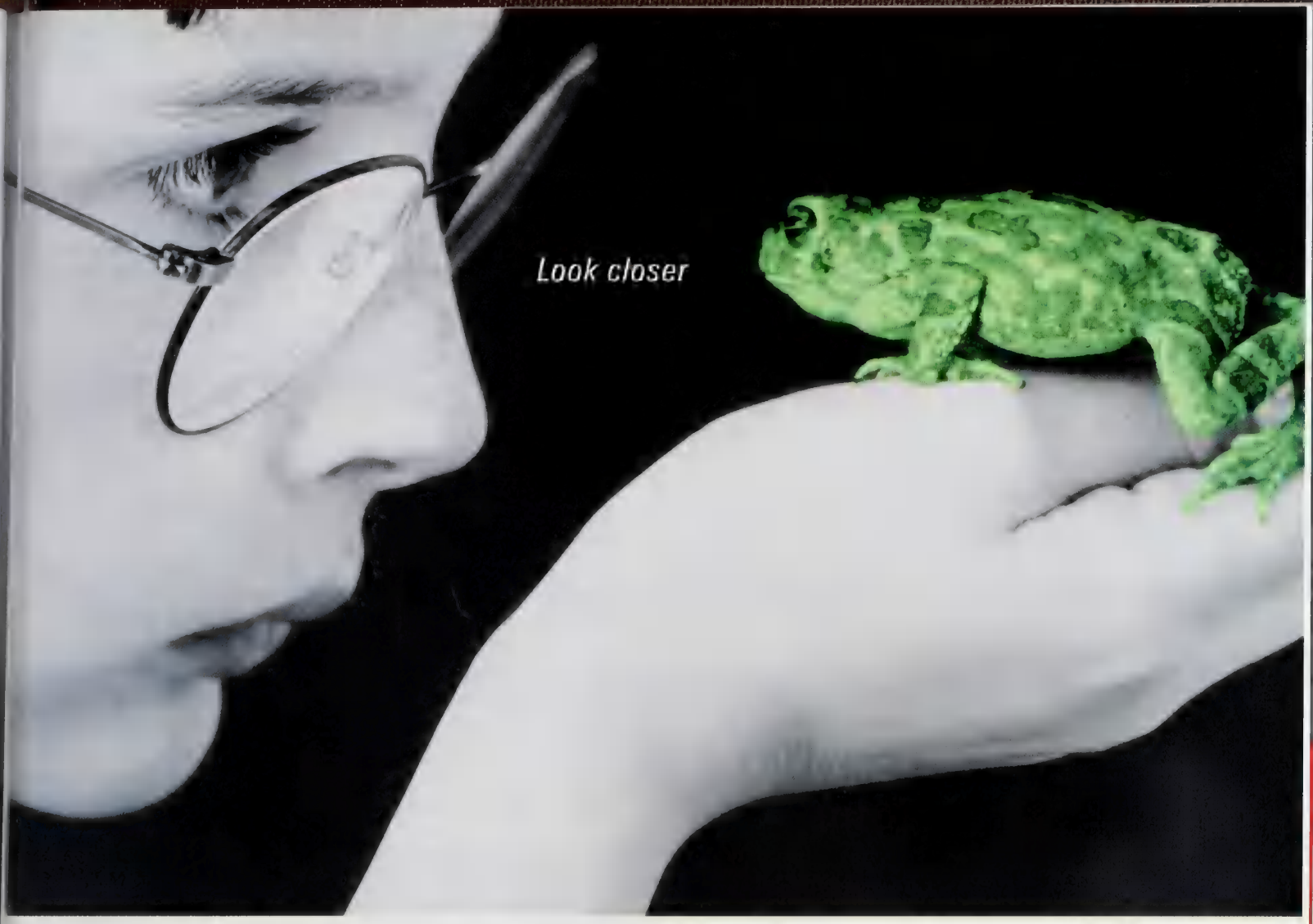
Out of Site
New York City
Through October 13, 2002
This exhibitition focuses on how technology and communication have impacted modern-day culture. A team of international artists have come together and responded to this question by re-shaping space using different forms of media for analysis. At the New Museum of Contemporary Art. Call 212/219-5328.

SHOPPING
Frankfurt
September 24–December 8, 2002
This exhibition analyses the cultural phenomenon of shopping in the cultures of the 20th and 21st centuries. More than 70 artists are featured, all of whom, in some way or another, dealt with consumer culture through visual art, architecture, and film. Among the artists on display are Rem Koolhaas, Marcel Duchamp, Jeff Koons, Claes Oldenburg, Gerhard Richter, and Andy Warhol. At the Schirn Kunsthalle Frankfurt. Call 069 29 98 820.

Lectures, Symposia, & Conferences

What Matters Now: 52nd International Design Conference
Aspen, Colorado
August 21–24, 2002
Join leaders in architecture, the arts, and science in this year's annual design conference. The 2002 program committee members include Walter Hood, Michael Rotondi, Lorraine Wild, Paola Antonelli, Bran Ferren, Gregg Pasquarelli, and Billie Tsien. Visit www.idca.org or call 800/815-0059 for more information.

Universal versus Individual: The Architecture of the 1960s
Jyvaskyla, Finland

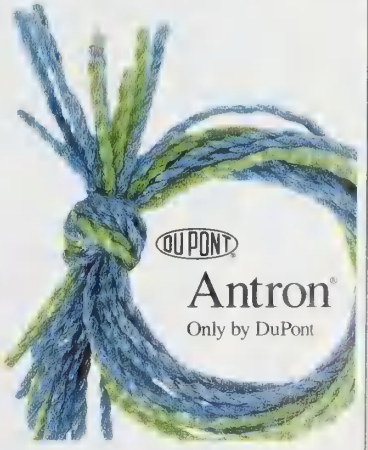


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Dates & Events

August 30–September 1, 2002
This conference will explore the architecture of the 1960s by illuminating universal currents as well as individual and regional trends. Keynote speakers include Beatriz Colomina, Claes Caldenby, and Dennis Doorman. Sponsored and organized by the Alvar Aalto Academy. For more information, visit www.alvaraalto.fi/conference/universal.

5th International Architecture Symposium Pontresina
Pontresina, Switzerland
September 12–14, 2002
This symposium is tackling a wide variety of issues that are of importance in the world of architecture today. The main discussion points will be the development of a new form of architecture for minority groups in poor cities, and the concept of the Global Guggenheim and the complex relationship between architecture, art, and business. At Congress Centre Rondo, Pontresina, Switzerland. Call 41 081 838 8318 or visit www.archisymp.com.

Frank Lloyd Wright and the Modern Metropolis
White Plains, New York
September 18–22, 2002
The annual conference of the Frank Lloyd Wright Building Conservancy is directed toward Wright's documented affinity to New York City, despite the general belief that he was "anti-urban." His ideas for reconstructing the metropolitan region in organic terms will be discussed, with architecture critic Herbert Muschamp of *The New York Times* as the keynote speaker. At the Renaissance Hotel. For more information, call 773/324-5600 or visit www.savewright.org.

AIA California Council Desert Practice Conference 2002
Indian Wells, California
November 15–17, 2002
This conference attempts to clarify the business of the practice of architecture. The conversation will cover project delivery, business and practice management, emerging practices, future trends, and expanded services. At Renaissance Esmeralda Resort. Call 916/448-9082 or visit www.aiacc.org/conferences.

Conventions

Rail-Volution 2002
Washington, D.C.
October 3–6, 2002
This year's conference focuses on the community's role in making transit and land-use decisions and brings a unique cross section of citizen activists, business leaders, elected officials, and planners to the table to discuss the issues. Rail-Volution features a variety of sessions, including hands-on workshops, case studies, and moderated panel discussions. Contact 800/788-7077.

NOMA International Congress and Exposition
Ft. Lauderdale, Florida
October 15–18, 2002
An opportunity provided by the National Organization of Minority Architects to showcase their work and interact with other architects and design professionals. At the Wyndham Bonaventure and Spa. Call 301/941-1065 or e-mail avery@noma.net.

Competitions

The Great Egyptian Museum Competition
Deadline: August 10, 2002
An open invitation to architects from around the world to participate in the creative design of this new museum. Located near the Giza pyramids, the museum will house some of Egypt's most ancient monuments and treasures. Visit www.gem.gov.eg.





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Dates & Events

Shinkenchiku Residential Design Competition 2002
Deadline: September 2, 2002
This competition, held annually by The Japan Architect, invites architects from around the world to explore the theme "Dwelling Where the Muses are Served/Spared Emptiness." The entire competition will be judged by Daniel Libeskind. Sponsored by the Shinkenchiku-sha Company. Visit the Web site www.japan-architect.co.jp for more information.

Pentagon Memorial Design Competition
Deadline: September 11, 2002
An open, two-stage competition to select a design for an outdoor memorial on the grounds of the Pentagon, near the site of impact. The goal is obviously to honor the victims of the attack on the Pentagon on September 11, 2001, and any individual or team may enter. For more information, call Mary Beth Thompson at 410/962-2809.

Tilt-Up Construction Association Achievement Awards Program
Deadline: October 1, 2002, with supporting materials due October 15, 2002
The purpose of this awards program is to recognize outstanding site cast Tilt-Up structures. There is a $100 entry fee for each project submitted. Submittal forms and directions can be found on the TCA Web site, www.tilt-up.org, or obtained by contacting TCA at 319/895-6911.

Seattle Case Study Homes
Deadline: September 20, 2002
Architects and designers are invited to submit designs for a publication. For information and to submit, see www.seattlecasestudyhomes.com.

26th Annual Cooper Source Awards
Deadline: October 25, 2002
Open to any lighting designers, architects, interior designers, or other professionals who use light in an interior or exterior application. Two categories are available, one for professionals, the other for students, who will compete for a $1,500 cash prize. For more information, visit www.cooperlighting.com.

Mobile HIV/AIDS Health Clinic
Deadline: November 1, 2002
Architecture for Humanity, a non-profit organization, announces its 2002 international design competition. Architects are invited to submit designs for a fully equipped mobile medical unit and HIV/AIDS treatment center for use specifically in Africa. Entry fees, donations, and additional fund-raising sources will be used to build the winner's prototype. Visit www.architectureforhumanity.org for more information.

International Competition for the Design of "Ephemeral Structures in the City of Athens"
Deadline for receipt of mailed entries: November 25, 2002; Deadline for dispatch or handing in of entries: November 11, 2002
The Hellenic Cultural Heritage SA, supported by the Hellenic Ministry of Culture, is organizing this competition for the 2001–2004 Cultural Olympiad and the Athens 2004 Olympic Games. The program includes event platforms for music, dance, and other events that don't require seating; open-air theatres; and semi-open exhibition spaces, among others. For more information, call 33 10 976 95 10, visit www.culturalolympiad.gr/ephemeralcompetition, or e-mail ephemeral.competition@eeogroup.gr.

Please send event and competition listings to ingrid_whitehead@mcgraw-hill.com.



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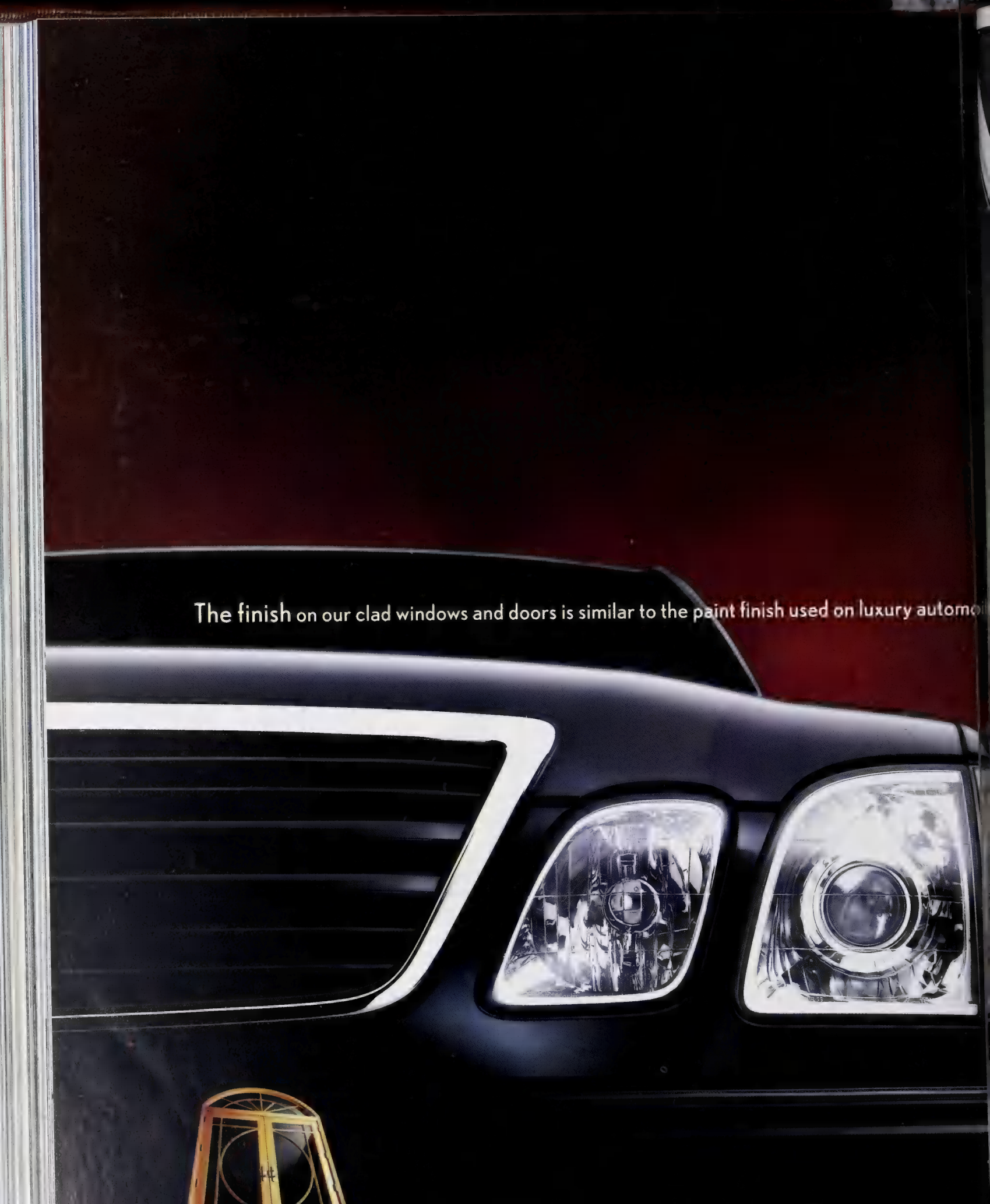
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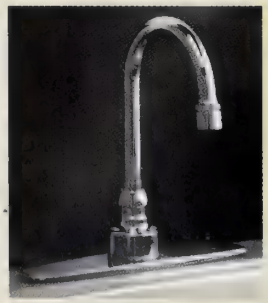
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For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

Years spent watching television paid off for at least one young firm featured in this month's archrecord2. Knowledge of bad sitcoms helped them explain their design to a competition jury. The media are also helping the career of a London duo who have recently won a major award for their work in one of the toughest towns for architects to get started in. And when you're done with the broadcast and print media, visit our Web site for the best in Design, Work, Live, and Talk.

DESIGN

PLY Architecture: Four's Company



A good knowledge of television helped PLY Architecture + Design, a firm based in Ann Arbor, Michigan, to win a competition to design a Case Study House in Cleveland. The competition provided two hypothetical clients, but the four architects who make up PLY decided that their house should be more flexible, so they basically designed it for every type of client they could think of. TV came into the picture when the architects began to explain their ideas.

"In the exhibition, we tried to show the flexibility of this house, so we laid out the furniture for four different families," said Craig Borum, one of the four principals (bottom left). "To try to make it accessible and understandable, we chose pretty well known families: We chose the Cosbys; we chose the Cunninghams from *Happy Days*; we chose Jack, Chrissy, and Janet from *Three's Company*; and then we chose *The Andy Griffith Show*. So we had a single parent. We had three adults sharing a dwelling. We had a full nuclear family with a home office—the Cosbys. And then we had a kind of traditional family with Fonzie living over the garage, which is exactly where Fonzie would live in our house."

The Cleveland Case Study House was designed as a series of premanufactured loft spaces that can be placed on top of a custom base. The upper floor can be used as bedrooms, home offices, or rental space. The ground floor is equally flexible. "The only thing that's defined on the ground floor is the kitchen," said Karl Daubmann, another one of the principals (top right). "Everything else is just a large room or a small room or a medium-size room."

Daubmann and Borum met in 1999 at the University of Michigan, where they were both teaching. The other two principals in the firm, John Comazzi (top left) and Gretchen Wilkins, also teach at Michigan. Being attached to a university has been an entirely positive experience for these architects. "The university respects our time, and our colleagues are a good source of ideas,"





Case Study House Competition, Cleveland, 2002
PLY Architecture + Design. In the winning entry for this competition, PLY designed a prefabricated upper-floor structure that could sit in various configurations atop a customized ground floor.

(continued from previous page) Borum said. "It wouldn't be the same sort of practice if we didn't have a place to talk about what we're doing in a critical way."

The firm was loose at first, with a shifting group of collaborators working on various projects and competitions. But after almost winning a competition to design a public school in Chicago, PLY took the jury's reaction to heart. "I think they sensed that we weren't a real firm," Daubmann said, "and they wouldn't give us this $20 million school to do if we were just four professors showing up. One of the things that this forced us to do was to be more regimented about our idea of the office."

The four partners have since realized that each has something unique to bring to the drafting table, and their recent projects, which include several residences, an office building, and a retrofit of a local sushi restaurant, reflect the mingled personalities and design philosophies of the principals.

"We each tend to take on a project and guide it through," Borum said, explaining the firm's work process. "When one person is the lead on a project, the rest of us take on the role of critic. But we're all working on every project; we're all drawing. Being together as a firm has given us the chance to do something more than any one of us could do at a given moment." *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 to see several more projects from PLY Architecture + Design.



House on the Huron River, Ann Arbor, Mich., 2002
PLY Architecture + Design. This renovation and addition to an existing house takes advantage of the site's commanding view of the river in the house's backyard.



Interior Renovation, Ann Arbor, Mich., 2001
PLY Architecture + Design. Color defines space in this kitchen that the architects designed and built on-site.

WORK

Plasma Studio of London wins YAYA



Plasma Studio, a London-based firm, has won the 2002 BD/Corus Young Architect of the Year Award (YAYA). Plasma's two principals are Eva Castro and Holger Kehne.

The award required the submission of a 13-page portfolio in which as many (or as few) projects as desired could be included—built, unbuilt, or under way. The only other requirement was that the entrants all be less than 35 years of age. The YAYA's jury was chaired by Richard Feilden and included Zaha Hadid, Mohsen Mostafavi, and Spela Videcnik, a member of last year's winning firm, Oman and Videcnik [RECORD, December 2001].

Castro said that working in London offered their firm, and others like it, a "good place to project from, but very difficult to develop" within, since the city's established density offers little room for new construction. Most young firms in London subsist on renovations and restorations. The team hope that their growing success will allow them to expand their practice across Europe, and even in the U.S.

Among the projects that won them the award was a renovation of a silversmith's workshop, in which they added an upward-snaking platform made from industrial steel grating, playing with the natural light supplied by the skylight without obscuring it. They also refurbished a musicians' home, where they added a single wall that mutates to become storage, a mirror, a window, a wardrobe, or stairs. The rooms that this wall delineates also serve multiple functions. One of the rooms is a music room with soundproof walls that also acts as a dressing room. Both of these projects are located within London, as are all of the firm's built projects. All of them are also refurbishments of existing buildings.

Since the YAYA, Plasma won fifth place in a competition for an ocean museum in Germany on the Baltic Sea. The firm competed against a group that included Coop Himmelb(l)au and other large European firms, signaling that perhaps the YAYA is just the start of its success. *Sinan Schwarting*

To view some Plasma Studio projects, visit architecturalrecord.com/archrecord2

On the Web, archrecord2 presents a series of articles about how emerging architects shape their careers. The first installment, focusing on Web sites, can be found at **architectural record.com/archrecord2**, along with our monthly forum.

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An apartheid-scarred Johannesburg continues to renovate and heal

Correspondent's File

By Lisa Findley

From the window of an airplane it is easy to see that apartheid is deeply written into the landscape of South Africa. Even the smallest settlements appear as two towns: One consists of a grid of tree-lined streets and comfortable houses surrounded by lawns; its shriveled twin, always some distance away, has a much tighter grid of dirt roads lined with tiny shacks. Here, trees are a rarity and lawns nonexistent. This pattern of racist neatness appears no matter the size of the population: the white town and the black "township".

While apartheid ended in South Africa legally and politically in 1994, its policies still affect everyone spatially, socially, and economically. In Johannesburg, at eight million the largest city in the country and its economic engine, these physical manifestations of apartheid happen on a huge scale—with the township of Soweto as its shadow double some 35 kilometers away. Transportation between Soweto and Johannesburg is profoundly inadequate and expensive. Although middle-class people can now move from the townships, buying houses in once-white-only neighborhoods closer to the city, the poor must remain behind.

While Soweto struggles to avoid sinking further into poverty, Johannesburg itself is also struggling with the aftermath of apartheid. Beginning in the early 1990s, as the end of apartheid approached, businesses started to leave the once-prosperous downtown primarily to relocate in the upper-class enclaves like Sandton, several kilometers to the north. Here, expensive gated communities are protected by high walls, electric fences, and security patrols, and closely monitored shopping malls substitute for public space. Sandton, too, has its township double: grim Alexandra. Motivated by both economic and racial fears, the trickle of "white flight" from Johannesburg turned into a flood after 1994, with the first democratic election and the elimination of the pass laws that kept nonwhites out of the given areas unless they were specifically employed there.

On the surface, things look bad for this once-thriving urban center. As businesses abandoned the city, the empty streets became more dangerous, leading more businesses to leave. Many underused office buildings now provide a silent backdrop to the informal trading that occupies the city sidewalks, while squatters illegally, but openly, occupy others. The formal economy of downtown is barely kept alive by the presence of a few bank headquarters, the Gauteng provincial government's offices, as well as the offices of the gold-mining companies that are the raison d'etre of Johannesburg in the first place. In a final blow to the downtown's dignity, the South African Stock Exchange, the 10th-largest market in the world, recently moved to new, sanitized quarters in Sandton. But all is not lost.

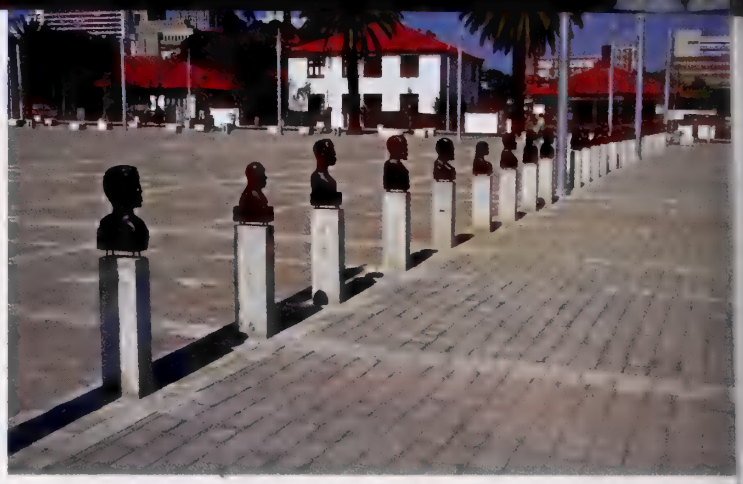
Surprisingly, the story of central Johannesburg, a fast-forward version of the declining fortunes of many American cities in the late 20th century, is now moving into the next chapter: redevelopment. Somehow, in the midst of the other priorities clamoring for the limited resources of the post-apartheid city and provincial governments, long-term investment in urban redevelopment has gained a place. There is a consensus among decision makers that the economic and cultural vitality of its cities represents South Africa to itself and to the world. This makes Johannesburg a key player in attracting and maintaining investment and tourism. Consequently, an alliance of government interests, building on the city's efforts to make the downtown both safer and cleaner, are in the process of turning Johannesburg around.

The key players in this effort are the Johannesburg Development Agency (JDA), a fledgling city agency launched in early 2001, and Blue IQ, an imaginative economic-development initiative by the Province of Gauteng begun in 2000. While the JDA is young, it is already respected



Johannesburg's renovation efforts include transformation of the Constitutional Court Building (above) and Turbine Hall (left).

Contributing editor Lisa Findley practices architecture in Oakland and teaches at the California College of Arts and Crafts.



Carved heads adorn the bollards in the new Mary Fitzgerald Square.

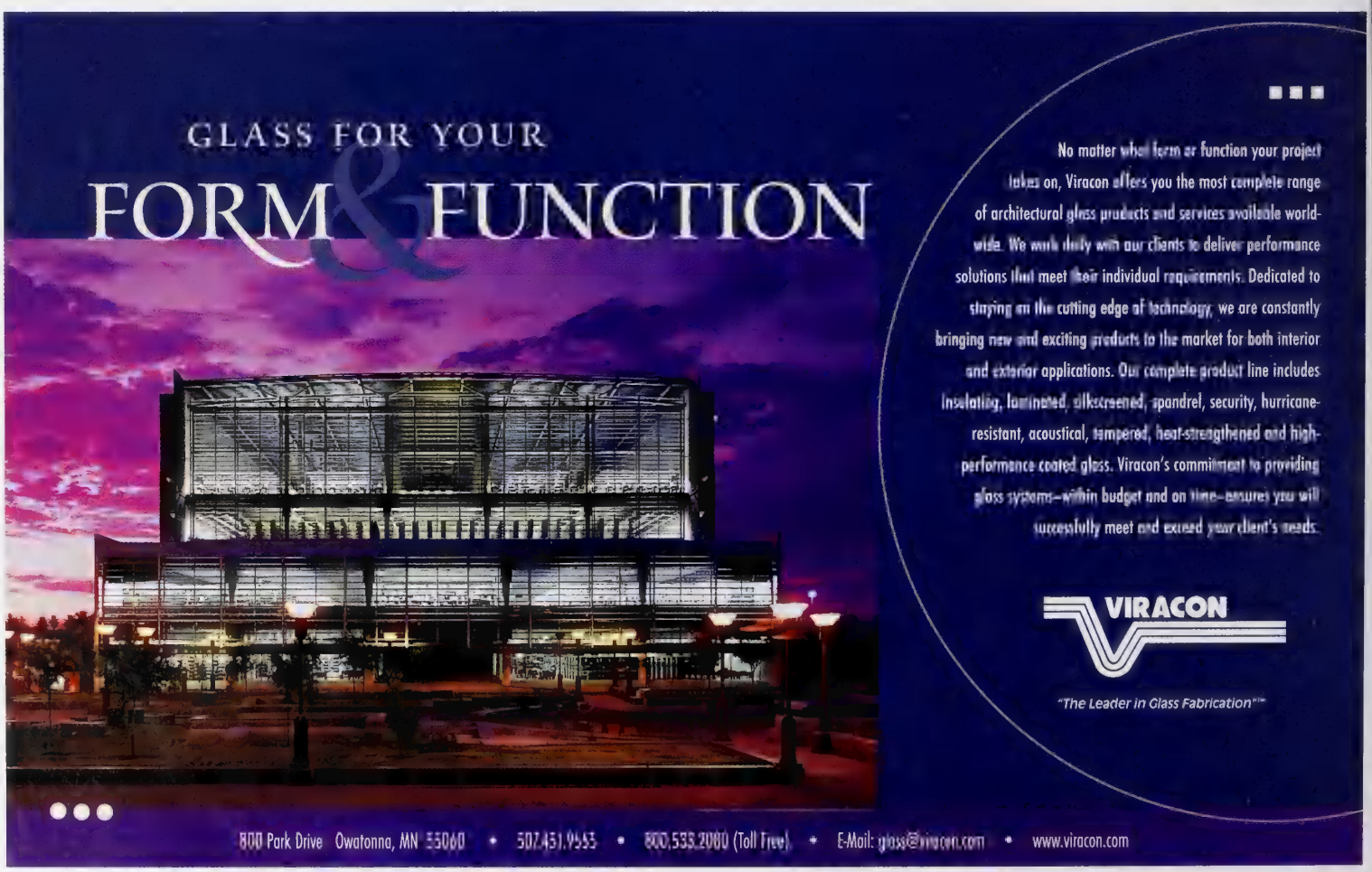
as an action-oriented agency working in sophisticated ways, drawing upon the experience of cities all over the world and the knowledge of foreign consultants.

Blue IQ (no one admits to knowing where the enigmatic name comes from) is a quasi-autonomous provincial group that focuses, according to Oren Fuchs, one of the general managers, "on preselected projects in the areas including high-value-added manufacturing, 'smart' industries, and enhanced service sectors like tourism and business travel." The activities of these two groups overlap in two major efforts for Johannesburg, with the JDA as the implementing agency.

First is the revitalization of a former warehouse district known as Newtown—located at the edge of the city center—into a cultural hub by creating large venues for the performing and visual arts, training facilities for all types of cultural production, and a center for craft training and manufacture. Already in place in Newtown are Museum Africa, the Workers Museum, the long-established Market Theater and craft market, small video and photography production facilities, rehearsal space for two dance companies, and a vast public plaza, Mary Fitzgerald Square. Cafés and bars are starting to open in the area, and a firm of young architects has set up shop in the shell of a tiny cooling tower.

Under construction on the edge of the Newtown precinct is an enormous transportation and trading hub known as Metro Mall, designed by the Johannesburg firm Urban Solutions. The hub will handle 150,000 commuters a day through a facility with 1,800 taxi bays (for the overcrowded minibus taxis that ply the routes between the townships and the city), 30 bus bays, 800 trading stalls, and various other public accommodations. Also under construction is the Bus Factory, a renovated bus-maintenance facility that will house craft training programs and production facilities. The Mandela Bridge, a cable-stay bridge that will connect the Newtown area to the cultural venues, city government offices, University of Witswatersrand, and other activities perched in the Braamfontein district, on a small ridge just north of the downtown, is also under construction.

Still to come for the government efforts in the district are five housing projects with a total of 2,000 units, many affordable, and the renovation of a set of Goliath abandoned turbine buildings into a performing arts school and venue. In a gesture of its faith in this key site, Blue IQ located its headquarters in the center of Newtown. "Newtown has the potential to become one of the great arts districts of the world," says Leslie Musikavanhu, an architect working on the Bus Factory and other



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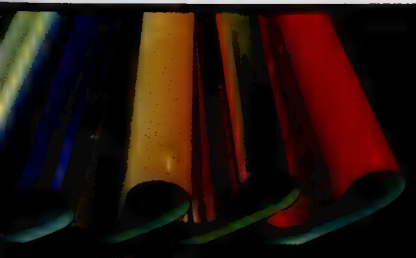


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Newtown projects. "Imagine the creativity pent up in the people of South Africa during all of those years of apartheid. This place will be flooded with that energy."

The other large central Johannesburg precinct where the JDA and Blue IQ are catalyzing development is radically different from Newtown, but more significant to the new democracy of South Africa. Up on the ridge in Braamfontein, next to an old Afrikaaner fort and the notorious "Section 4" of the "Native Prison" of apartheid years, cranes rise over the construction of the new national Constitutional Court. The building, the subject of an international competition with a collaborative entry by OMM Design Workshop of Durban and Urban Solutions of Johannesburg, is due to be completed in August 2003. Unlike the forbidding grandeur of the U.S. Supreme Court, the new South African Constitutional Court comprises a nonmonumental collection of smaller buildings connected by art-filled public spaces open to all citizens. According to Constitutional Court Justice Albie Sachs, "Given the terrible history of the abuses of basic civil rights in South Africa, it is important that justice is open and attainable for everyone. This building must symbolize the aspirations of our new constitution, which is seen as the most progressive in the world."

CONSTITUTION HILL—ONCE A PLACE OF WAR AND IMPRISONMENT—IS BECOMING A PLACE OF JUSTICE AND PROTECTION.

The court is the central piece of the redevelopment of what is now known as Constitution Hill, a rocky outcrop overlooking Johannesburg. In a poetic gesture, this place of war and imprisonment is being transformed into a place of justice and protection. The fort and Section 4 will remain as cultural heritage sites, while the former women's prison will be converted into offices for various rights organizations. It is up to private developers to propose the hotels and the office and commercial blocks that are envisioned to complete the precinct.

While these two projects will not alone save downtown Johannesburg, they are already having the ripple effect that JDA and Blue IQ had hoped for. Private investment in the central city has turned around and is now increasing. Smaller public and private redevelopment projects abound, including the JDA's efforts to revitalize garment manufacture in the city's Fashion District, while once-abandoned warehouses are being occupied by artists and designers.

Altogether, the revitalization of Johannesburg appears to be shaping up as a success. However, these huge projects are only a small step in the mammoth architectural and urban design challenges that face South Africa as it strives to undo the double-city spatial legacy of apartheid. Neither the Newtown nor the Constitution Hill project addresses the primary issue of creating one contiguous city or of adequately housing the poor downtown to achieve both racial and economic diversity. Blue IQ does have one project in its portfolio that has some potential to help: the Gautrain. This is a state-of-the-art rapid-rail transportation system that will be deployed in the coming years. However, with unfathomable economic elitism, Gautrain will not serve the townships but instead will connect the business and governmental nodes of Pretoria (the nation's capital 60 kilometers north of Johannesburg) and Sandton with Johannesburg. Many of the attitudes of apartheid linger in the air as economic elitism threatens to replace racial elitism in this complex and evolving nation. ■





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Advice to architects: Keep Howard Roark and his grand schemes away from Ground Zero

Critique

By Robert Campbell, FAIA

I'm looking at an e-mail from a well-known New York architect, a name many of us would recognize. This architect writes: "If allowed to stand, the decisions made to date around the rebuilding of Ground Zero will doom it forever to what verges on a national disgrace. The Lower Manhattan Development Corporation and the Port Authority, the rebuilding authorities, have already failed the nation in its expectation for a unique, uplifting, and visionary project to rise from the ashes of Ground Zero. What should become a new wonder of the world—a true statement of who we are—is emerging as just another speculative real estate development and a memorial at its side. Only the participation of the greatest architectural minds, selected through a national design competition, will allow us to rebuild the World Trade Center in the best way possible. We must act now to make the site a lasting and fitting tribute to 9/11 and its victims instead of spending billions of public dollars [on] a mundane project …"

I quote this because it is typical of the kind of romantic, Howard-Roarkian document with which I find myself in total disagreement. As we come closer to seeing actual design proposals for the World Trade Center (WTC) site—a troika of alternative schemes is due from the Lower Manhattan Development Corporation in September—I'd like to use this letter to suggest how we, the architectural community, should and shouldn't be reacting.

Let's take the letter phrase by phrase: "A unique, uplifting, and visionary project." I'm sorry, but I can't imagine why an uplifting and visionary project, whatever that may turn out to mean, is the proper way to memorialize a disaster. New York is full of attempts at uplifting and visionary projects, like, say, the Hall of Fame for Great Americans (does it even still exist?) or Grant's Tomb or Lincoln Center or the UN. But what makes it a great city is the ordinary streets of apartments and shops and galleries and factories and restaurants, richly layered with human use, arranged for the most part on a perfectly ordinary—mundane, to quote the letter again—grid street plan.

"A new wonder of the world." Well, let's see, what were the wonders of the world? The pyramids of Egypt? The Colossus of Rhodes? The Tomb of Helicarnassus? I've never been a fan of the too-cute phrasing of Robert Venturi's "Ugly and Ordinary," but I prefer U and O to Pompous and Self-Important.

"Just another speculative real estate development." Almost everything I love about New York began as just another speculative real-estate development. Surely that is the very essence of our greatest city. When things have gone wrong, they've often done so on the advice of architects, as in the tower-in-the-useless-plaza era of the 1960s.

"The participation of the greatest architectural minds." Are we really so sure that our great architectural minds can do so much better than anyone else? Does the history of avant-garde urbanism over the past century suggest that we can? Brasília? Chandigarh? Cumbernauld?

What's distressing about all this is that, once again, we architects are carefully positioning ourselves as outcasts from the larger culture that is our only source of support.



Lower Manhattan, seen here in an earlier era, was built mostly on spec.

It's important to note that the WTC, which was a terrible piece of architecture and urbanism, was not at all an example of my letter writer's "just another speculative real estate development." If it had been, it would have been better. It was, instead, the egregious work of a bullying, market-free institution very much like a Soviet Commissariat, namely the Port Authority, and of an architect who doubtless thought of himself as a visionary. Until very late in its life the WTC never even made money. It survived economically only because half of it was packed with state workers. Yes, that's the same Port Authority, and yes, something bad could happen again. Judging by current rumors as this is being written, the authority may well be lusting after another grossly overbuilt, single-use office ghetto. What will keep that from happening, if anything can, is not proposals for a new wonder of the world, but the willingness and hard work of architects and urban designers who get involved in the process.

One group has been especially notable for doing that. The reports by New York New Visions, which have been coming out since February, are, as far as I'm con-

Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic for The Boston Globe.

cerned, a landmark document that everybody should read and, with whatever criticism and reservations, get behind. If there's such a thing as cumulative wisdom about how to make cities, it's well represented in this document. The Visions group calls itself "a pro bono coalition of architecture, engineering, planning, and design organizations committed to honoring the victims of the September 11 tragedy by rebuilding a vital New York." Its *Principles for the Rebuilding of Lower Manhattan* rightly sees the WTC site as a problem of city building in the context of larger issues of transportation and regional planning, not merely as an opportunity for a new wonder of the world. It seeks to learn from the lessons of the past, not merely the intuitions of the present. A follow-up document, *Possible Futures*, lays out alternative scenarios, within the framework of the principles, for redevelopment of the WTC site. You don't have to agree with every line to feel rather proud of a profession that has volunteered so much time and energy. I don't know of a comparable example. (Both reports are available at www.newyorknewvisions.org.)

Some have expressed public outrage because Visions is the work of "corporate architects," whatever that term may mean, and have bemoaned the fact that their gifted friends haven't been handed the project on a silver platter. That's not only unrealistic, it's juvenile. Nor is it fair to accuse the Visions authors of merely seeking work—which, even if true, would only be following H.H. Richardson in his classic statement of an architect's most important skill: "Get the job."

When the general public sees nothing but architects and architectural critics bickering and accusing one another of selling out, the public, quite rationally, concludes that if we can't agree on anything, we must not know anything. What the public wants to hear from architects is something much more like a common voice—a voice that sounds as if it speaks from wisdom and experience, not from some self-interested avant-garde vision—a voice that embodies an ethic of professionalism in words that can be understood. If it ever hears that common voice, the public may again be willing to pay for good, fresh, inventive architecture. It isn't willing to do that now because nobody agrees on what good architecture is, least of all architects. When architecture becomes Roarkian, the public becomes reactionary. Princeton is now building Gothic Revival dorms again.

In my car, I've been listening to the tape of a book, *Founding Brothers*, about the generation who created the United States Constitution. The Constitution, we can probably all agree, is the most successful example of American design. What makes that fact interesting is that the Constitution is a tissue of compromises. It's the result of a contentious and political process. What the Constitution suggests is that compromise is not half a loaf. It may be the nearest approach to perfection. So let's stop preening on the sidewalk and in the press and, like our forebears, get inside the room where the debate is going on. We're going to have to pull together if anything good is going to happen.

My own opinion? I wish to foist it on no one, but I think the best memorial to the World Trade Center would be not a soaring thing at all but a void. What we're memorializing is loss, after all, not accomplishment. The void would occupy the two footprints of the towers, which is a lot of space. Of course the void would need to be designed. That design would be a fit subject for a competition. All around it, we'd build a better city, based not on visionary dreams but on what we have all learned from the past mistakes of the greatest architectural minds. ■



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Avoiding the Pitfalls of Limited Contract Administration Agreements

Practice Matters

By Satish Rao

Comprehensive contract administration remains a key element in ensuring a satisfactory outcome for all the parties of a building construction project. The architect's best chance of heading off difficulties during construction still comes from being able to fully review shop drawings and submittals and to get a reasonable number of opportunities to observe construction as it progresses, regardless of pressures on time. Yet architects often confront problems when clients seek limited contract administration, with a curtailed construction-phase role for the architect.

Limited contract administration appeals to clients for several reasons. Some naively regard construction observation as costly and unnecessary because they believe drawings are a complete product that requires no interpretation or explanation. More quality-conscious clients might hire a construction manager and therefore think the architect's observation is redundant.

These well-meaning clients might not understand that a consultant who is unfamiliar with the architect's design concept or the assumptions on which the plans were based may not know the best way to solve problems or even recognize them. Clients have even been known to use construction documents to get building permits while fully intending to cut corners once the architect's role in observing construction has been restricted.

Satish Rao has been a project manager for more than 30 years and is currently with Torti Gallas and Partners.

What typically gets cut

A typical limited-services contract administration agreement might stipulate that the architect's fee would cover only the following:

- *Site visits limited to a specific number of trips;*
- *Submittal review limited to selected products and specific shop drawings;*
- *A stipulated allowance of hours for answering contractor queries and for in-house administration;*
- *Review and approval of the contractor's monthly payment requests;*
- *Approval of the Certificate of Substantial Completion.*

These limitations leave a significant void in the checking and observing of work, which can cause trouble. Consider the plethora of hazards to which the unwary architect might thus be exposed:

- *The architect cannot observe whether the builder's work conforms to the contract documents.*
- *The client or the contractor can make mistakes or changes without the architect's knowledge. These can result in code violations or safety compromises.*
- *The architect's review of only selected submittals may allow many deviations from the documents.*
- *Facts needed to support the certifications that must be signed cannot be verified.*
- *The capacity of the architect to effectively facilitate communications between the owner and contractor is severely curtailed.*
- *The architect loses control over aesthetic issues when the client or contractor makes changes affecting them.*
- *Often the client contracts for limited services but requests more as the project proceeds. Securing compensation for these additional services can be difficult.*

Clients usually want to lower the level of service in order to reduce the architect's fee. But the architect's liability is not lessened even if a restricted-services agreement has been accepted. Reduced contracts demand that the architect assume a higher level of risk in order to allow the client to save money. There is really no advantage for the architect to enter into such an agreement.

REDUCED CONTRACTS DEMAND THAT THE ARCHITECT ASSUME A HIGHER LEVEL OF RISK IN ORDER TO SAVE THE CLIENT MONEY.

Over the years, architects' acceptance of limited contract administration agreements has had unfortunate consequences. It has weakened the negotiating position of architects who are not prepared to accept limited-service agreements. It has allowed the construction-management industry to flourish, as architects have deferred more and more responsibility to them, and it has also had the effect of diminishing the stature of the profession in the eyes of the public.

Explaining the benefits

When a client wishes to limit contract administration, it is often because they don't understand the architect's role during this phase of the work. To sell your services, you need to understand this role yourself, to be able to explain its importance while negotiating your contract. Comprehensive contract administration is somewhat like an insurance policy: If things go well, its cost to the client is small compared to the losses that may well be incurred if things go awry. When millions of dollars are at stake during the construction of a project, disputes arise between those writing the checks and those writing the bills. Good contract administrators facilitate communication between parties—a vital role. In this role the architect may be correctly described as "a friend of the contract." This means the architect acts impartially in seeing that the work conforms to the contract documents, and that the client pays for it. This requires that the architect at times be an advocate for the owner, for instance through vigilance in spotting construction errors, and at other times in protecting the contractor.

Deciding to take the job

If you feel that having too limited a role during the contract-administration phase of a particular project will not provide you with the means to

adequately represent your client and to protect yourself, you may be disposed to walk away from the job. In order to make such a decision, you will have to know from the outset what are the minimum services that you can provide for the fee allowed for the work. If you must assume too many risks for the amount of compensation allowed, you may indeed have to turn down the job. Before you do, however, consult your insurance provider. He or she will help you identify risks and protect you against them.

If you take on the project

Should circumstances require you to accept a commission with less than a full scope for contract administration, you still must insist on a level of service that will provide all parties to the work, including the contractor, with a reasonable amount of protection from construction problems. Here are some tips:

Craft a thorough contract. Pay special attention to role definitions and limits of responsibility. Make sure the General Conditions of the Contract also describe your responsibilities. Be sure to include a provision indicating that you will not be responsible for the contractor's failure to perform the work in accordance with the contract documents. Never surrender services when that would result in compromising the safety of the public.

Get into the communication habit. Establish a trusting relationship with your clients and maintain clear and open communication at all times. Inform your clients that they must not make field changes without consulting with you. This will allow them to understand all the ramifications of these changes.

Keep thorough notes. The owner and the contractor will have kept detailed notes that can nail you in a dispute, so you must keep a day-by-day log of what happens on a project. Do not destroy e-mails. Legally, they are considered project records.

Never certify something you don't know for a fact. Do not certify the quality of construction you have not inspected. Do not certify the work of other disciplines. Avoid the use of words or phrases that imply unlimited scope, such as "all" and "et cetera." The architect is under no obligation to the client to sign anything from a lender or a surety company, so resist the client's efforts to include this requirement in the contract. You should never certify or warrant that the contractor's work conforms to the contract documents or to the codes and regulations.

You should decidedly refuse to sign monthly certifications for payment unless you have been able to personally visit the site frequently enough to judge the progress of the work with absolute certainty. Liability and exposure to lawsuits from either the contractor or the owner increase if inaccurate estimates of the percentage of project completion lead to inaccurate authorizations for payment or to delays in payments being made.

Hone your in-house practices. Develop a good set of standard procedures for your office and insist that your staff use them. Make sure your staff understands what being a "friend of the contract" means. Be certain that those who administer the contracts have read them and understand them well enough to identify potential dangers. Assign experienced staff to perform contract administration.

Know your costs and negotiate with care. Every contract should include a level of service and compensation that will enable you to provide adequate contract administration services. And this means protecting the client through the early detection of construction defects while limiting your own exposure to risk. ■

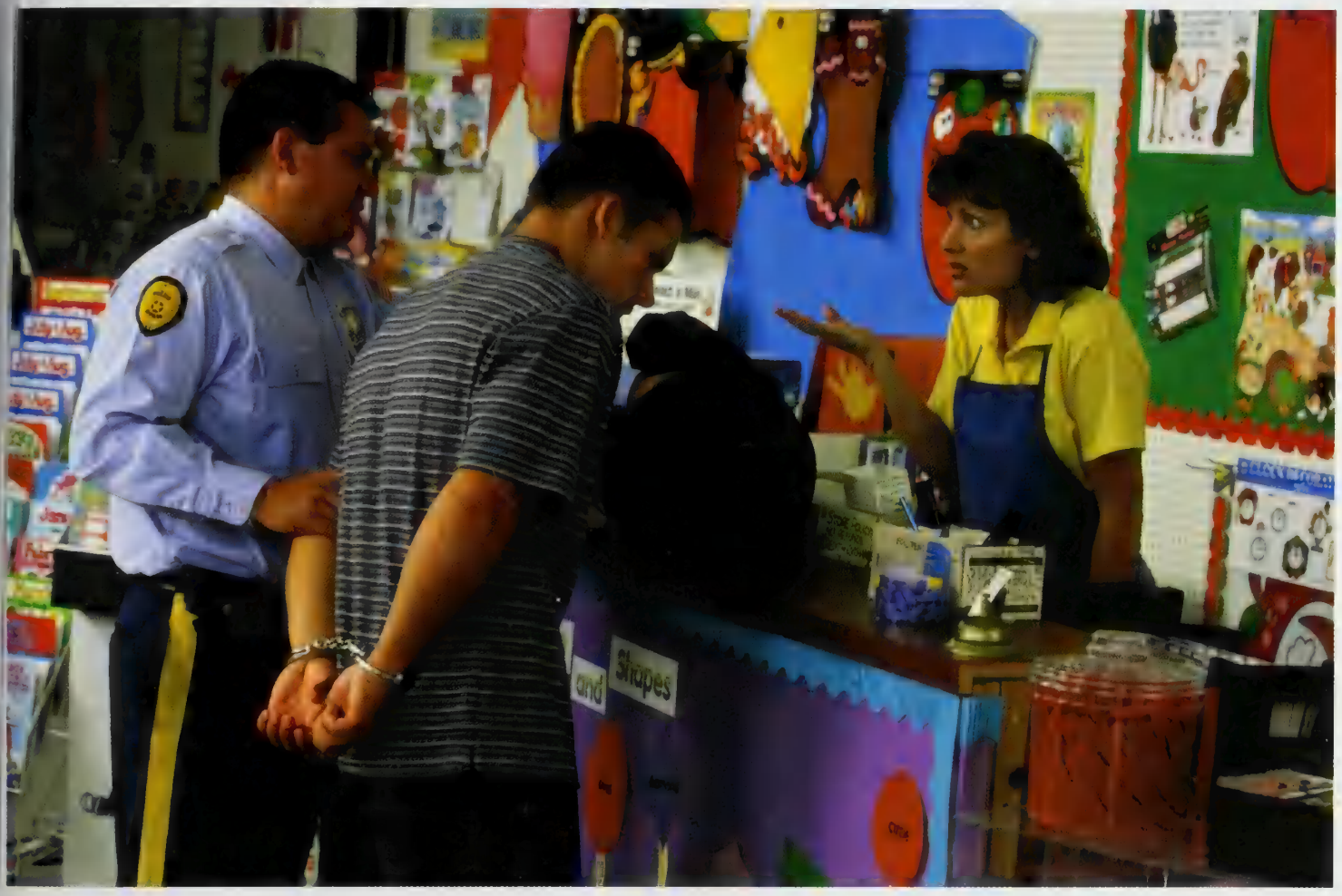


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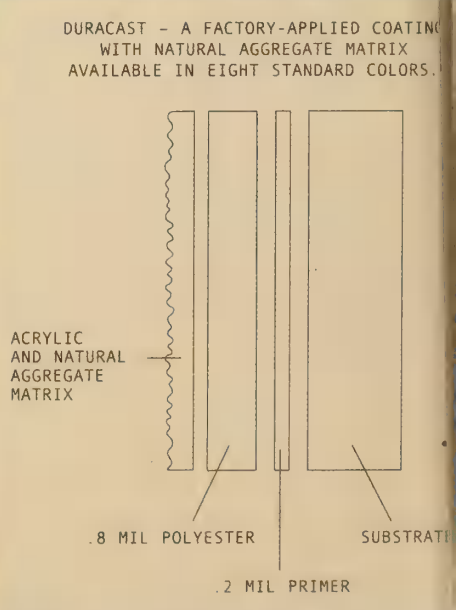
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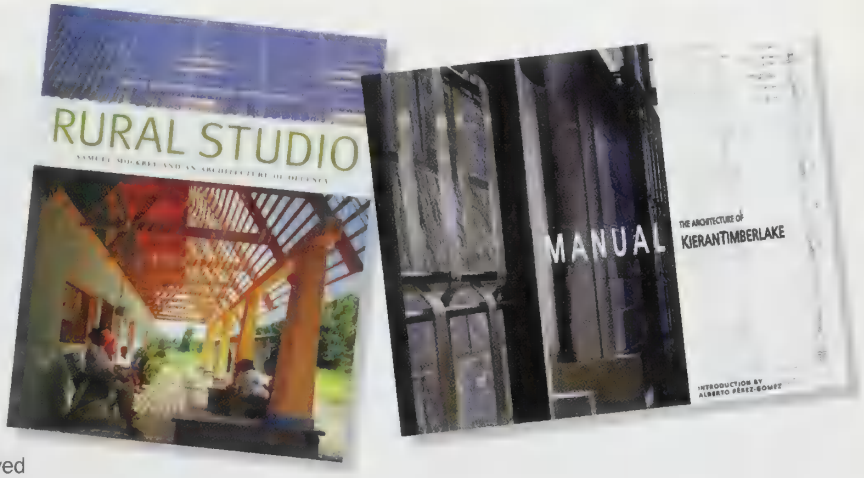
Rural Studio: Samuel Mockbee and an Architecture of Decency, *by Andrea Oppenheimer Dean and Timothy Hursley. New York: Princeton Architectural Press, 2002, 192 pages, $30 (paper).*

Hale County, Alabama, is one of the least likely places on earth to find great architecture. Poor, black, and mostly ignored since Walker Evans and James Agee brought it to world attention in 1939 in *Let Us Now Praise Famous Men*, Hale is "a left-behind place," explain Andrea Oppenheimer Dean and Timothy Hursley in the introduction to their remarkable book. But the hardscrabble land and its proud residents "seduced" Samuel Mockbee and has inspired the Auburn University students who operate out of the Rural Studio that Mockbee established there. The result is a legacy of extraordinary buildings—small in scale, miniscule in budget, but great in spirit and design.

Mockbee, who died at the end of last year, had strong convictions about the role of architects in our society and the need to teach students how to serve their communities. A big man who knew how to have a good time, Mockbee anchored his work and his teaching in a fierce sense of place. You can't understand his architecture without knowing about the land and the people for whom it was created.

This book reflects those ideas. A graceful introduction explains Mockbee, his motivations, and his methods, then gives way to a series of chapters rooted in the places—Mason's Bend, Newbern, Sawyerville, Greensboro, Thomaston, and Akron—where the Rural Studio has built. Dean, who is a contributing editor of RECORD, typically begins her descriptions of projects with the people who live in or use them, just the way Mockbee and his students began each project. Photographs show the untidy belongings and loving touches residents have added to their houses. Beat-up bicycles, embroidered tablecloths, and plastic furniture feel perfect in here.

The book also includes a short section of "Interviews with Students, a Teacher, and a Client," an essay by Lawrence Chua on "The Rural Mythology of Samuel Mockbee," and an essay by the photographer Cervin Robinson on the different approaches photographers from Evans to Hursley have taken in capturing the character of Hale County. Like Mockbee himself, this book impresses with its clear-eyed view of real life and its sense of conviction. *Clifford A. Pearson*



Manual: The Architecture of KieranTimberlake, *introduction by Alberto Perez-Gomez. New York: Princeton Architectural Press, 2002, 216 pages, $60 (cloth), $45 (paper).*

We have all seen hundreds of worthy architects' monographs that present the clients' programs, show handsome pictures of the results, and list the materials used. This one shows us something different, and something much more interesting. Twenty-nine buildings and projects by Philadelphia-based KieranTimberlake Associates, founded by Stephen Kieran and James Timberlake in 1984, are given conventional—but brief—descriptions at the end of the book. Many of them will be familiar, since more than half have won AIA awards and some of them have been published in RECORD. But most of the book is devoted to explaining the design strategies employed.

To use the architects' own terms, these strategies are identified by 10 gerunds: framing, hinging, joining, lining, patching, profiling, scaling, selecting, slipping, and weaving. None is a new invention; they have all been used by many design firms in many ways, but seldom with such highly developed awareness. They are explained one by one in written descriptions and, more clearly, in specific examples from the building designs, illustrated with photos, and drawing details. These are not design motifs, consistent in appearance, but design moves that give different results each time, and only a few of them are used in each project. Graphically, we are shown that variants of the "framing" and "weaving" techniques have been applied to 10 of the designs shown; for example, "patching" (or "episodic repair") to six, and "selecting" to only five.

How these strategies are applied is important. As Perez-Gomez says in his valuable introduction, "Kieran and Timberlake engage their clients in a process of discovery that is never preempted by some image of a future building." Or by some image of a recognizable KieranTimberlake style. The appropriate strategies for each project are "discovered in the process of making," not imposed from the outset as a Palladian or Corbusian system of proportions might be. In Perez-Gomez's words, this is an "Aristotelian" approach, in which principles "evolve from the bottom up," rather than a "Platonic" one "in which production is dominated by

preconceived ideas."

Here is an unusually intelligent book explaining the unusually intelligent methods one firm is using to design some unusually intelligent work. *Stanley Abercrombie*

KVA: Material Misuse, *by Sheila Kennedy. London: AA Publications, 80 pages, 2001, $20 (paper).*

This book meets architecture where it lives—in the material world—and presents an intriguing and gently subversive theory of design. Boston-based architect Sheila Kennedy speculates that today's interest in materiality is a backlash or compensation for our increasingly "virtual" world, which "produces a renewed desire for tactility and texture in consumer culture." Here she echoes Alvin Toffler's "high-tech, high-touch" argument of 25 years ago: The more abstract our lives become through electronic technology, the more we seek human and physical contact.

Kennedy is particularly intrigued by the "hollow wall" of today's construction technology, through which weaves a hidden world of utilities, electronics, and other "guts." "Convenient and concealable," she writes, "the forgiving space of the wall became the site of choice for infrastructure in America. Structure, sheathing, and services were conceived and conjoined in the hollow wall as integral components of a mass-manufactured construction system."

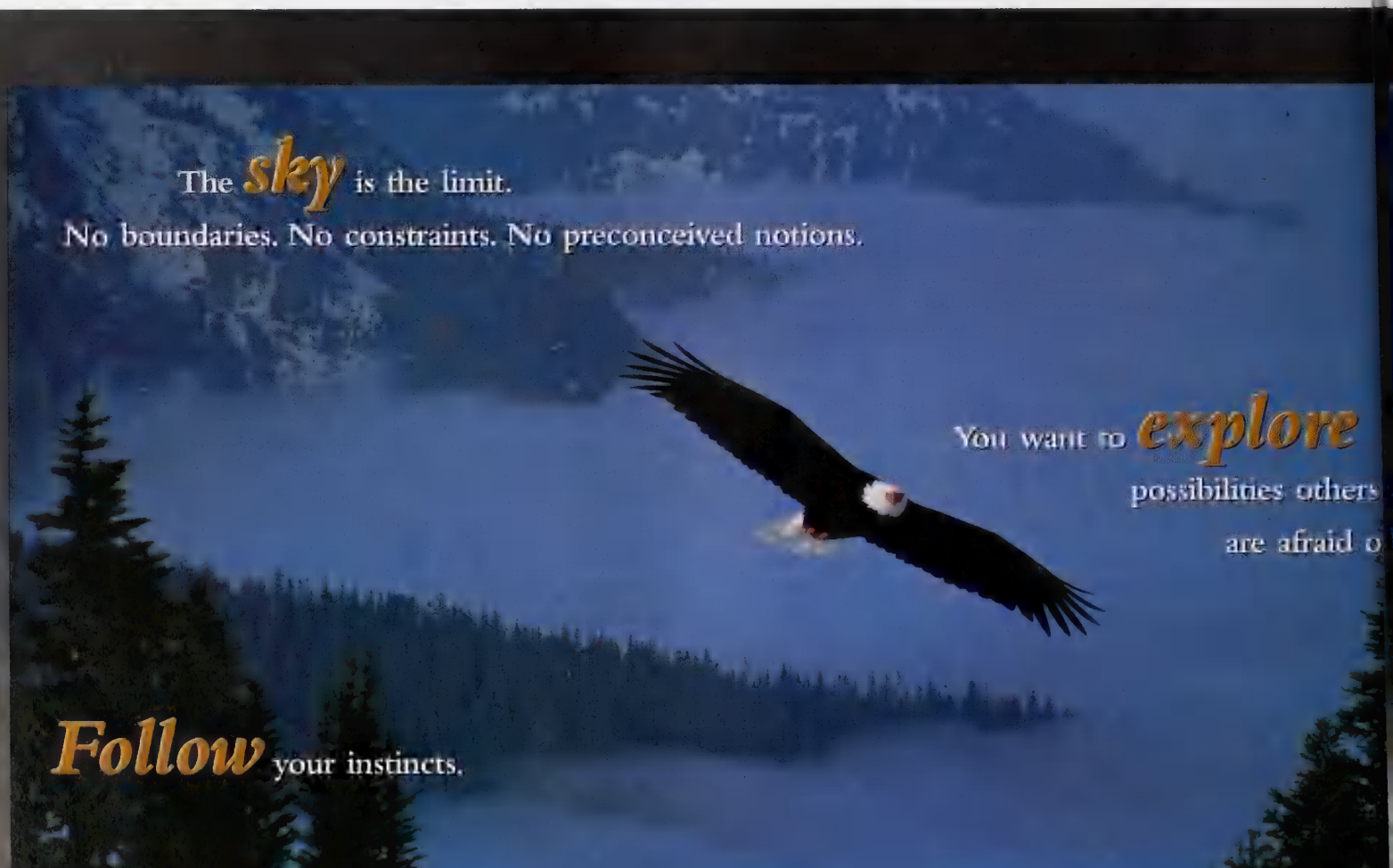
Such a development, Kennedy observes, forever changes the millennia-old tectonics of architecture. "The separation of volume from mass establishes a new distinction between structure and skin," she writes. "And for the first time, the wall not only divides space, but also contains it." The architecture of the



smooth wall is a lie. Plug ports, outlets, and all the other apertures that allow us entry to the concealed inner world are where the action is now. And because materials are constantly changing, the smooth surface will soon be alive with its inner workings. Kennedy notes, "When a material surface itself becomes a source for the transmission of light, heat, color, or information, material properties can be understood as a dynamic infrastructure with inherent variable spatial effects. Cladding materials that appear to be solid become potentially permeable, not only through the cracks and junctures of their seams and joints, but also through their newly transmissive surfaces."

Kennedy's message to us as designers is to take what the industry offers and put our own spin on it, allowing us to see the "stuff of architecture" in new ways: material use as a form of cultural criticism. Kennedy enjoins us to "deform" these materials and systems, to "misuse" them, to invent new definitions and uses. "Invention resides in a critical re-vision of what is already existing," she writes.

Kennedy backs up her theory and ideas with projects in which materials are rendered in new ways, are pushed to their limits, and call into question our assumptions about them. For a private gallery, Kennedy and her partner Frano Violich put mundane plywood through its paces, bending, blending, and transforming it from floor to



desk to ramp. An installation at the San Francisco Museum of Modern Art becomes a treatise on the properties and surprises of drywall and plaster, collaborating with union plasterers in the discovery process. The hidden cavity for infrastructure is revealed and explored in two bathrooms at the Boston Center for the Arts. These projects and others presented in the book put meat on the theoretical bones. In so doing, Kennedy not only offers us a way of thinking anew about the materials we use every day, but also presents architects with a model of critical practice. And that is where theory begins. *Michael J. Crosbie*

The Ethical Architect: The Dilemma of Contemporary Practice, *by Tom Spector. New York: Princeton Architectural Press, 2001, 208 pages, $25.*

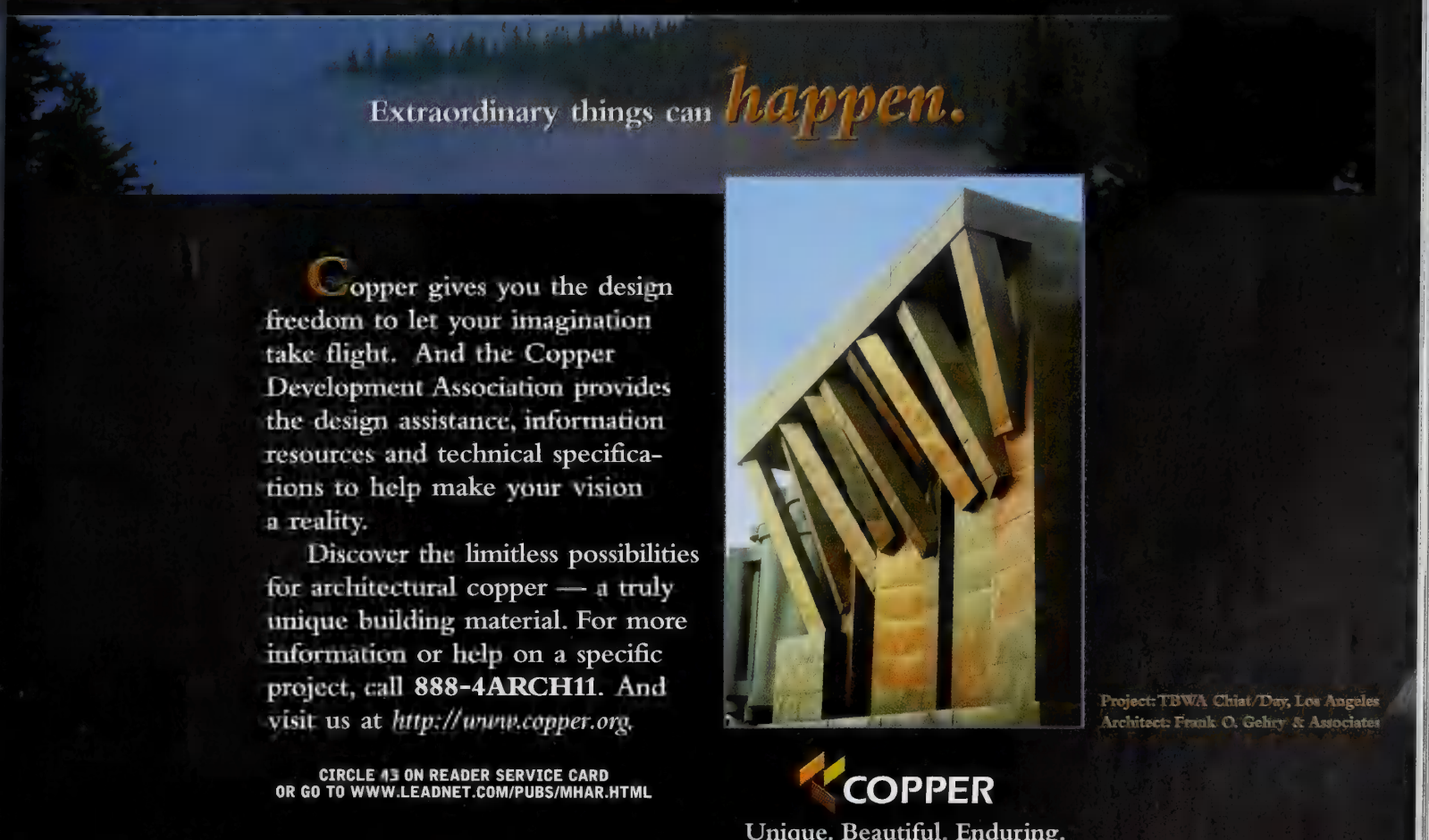
There are many nuggets of wisdom in this book, but I can't imagine any sane architect plowing through 208 pages of grad-school English to unearth them. This is a fairly shallow Ph.D. thesis that has been inflated into the semblance of a book.

Its theme is clearly stated: "How best to cope with the ethical dimension of architecture has yet to be resolved by the leading architectural theorists. The remainder of this book will address this void through a detailed examination of the values and moral dilemmas unique to architecture."

Unfortunately, the remainder of the book does nothing of the sort. What it does do is try to clear a path for the author's own ideas by first demolishing everything anyone else has ever said about values in architecture. The author reduces the thought of each of his predecessors to a simple absolutist idea. Then he picks each one off, sometimes in a casual sentence or two. Some of these easily defeated, imaginary opponents are straw men: the Aesthete, the Strict Moralist, the Pluralist, the Modernist, many more. Others are real. The author has no trouble deflating the likes of Gombrich, Vitruvius, Durand, Kant, Tillich, Harries, Frampton, Betsky, Venturi … Everything seems so simple. For instance: "For modernists, function is sovereign; for postmodernists, the good resides in heterogeneity; for deconstructionists, the puzzling truth is that there is no ultimate truth; for neoclassicists, the ultimate truth lies in longevity." At other times, the author says things so obvious you wince: "Reasoning and rationality are fine as far as they go, but one should be wary of letting them carry the actor too far from the known."

As noted, the bloody sacrifice of the intellectual precursors, which takes up most of the book, is meant to cleanse the world of wrong ideas so as to make way for the author's own solution. This is crammed into a few pages of the final chapter, which is entitled "Style." Having accused everyone else of absolutism, the author, not surprisingly, informs us that we should abandon absolutist solutions. Beyond that, though, he has some eloquent points to make, and I recommend pages 187–89 and 192–95 as well worth reading. He believes we architects can only be ourselves, saddled with our beliefs and conventions and virtues and community memberships, and that the expression of ourselves is style. No style, by definition, can be universal: "Architects work within a style precisely because of the absence of a privileged point of view. A tradition develops out of architects working out different answers to problems within a given mode of expression." He agrees with architectural historian James Ackerman that "style is a protection against chaos."

The attractive title is misleading. The book is not about ethics, it's about finding values of whatever kind that help you design. It's often confused and repetitious, but it comes out all right in the end. The biggest problem with books like this is their unfounded optimism about the amount of reading time anyone has. This should have been a pungent essay. *Robert Campbell, FAIA*





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Zaha Hadid imagines a new stratum added to Rome's architectural riches

Exhibitions

By Joseph Giovannini



Hadid's design for the new National Centre for Contemporary Arts in Rome (presentation model, left) is reflected in the flowing, curvy forms of her exhibition in the existing museum building (top and bottom right).

Zaha Hadid: Works, Planned and Completed. *Curated by Zaha Hadid, at the National Centre for Contemporary Arts, Rome, Italy (until August 11, 2002).*

Stop in traffic behind a bus in Rome this summer, and behold Zaha Hadid staring down from a poster advertising her summer blockbuster at the National Centre for Contemporary Arts. Posters everywhere—moving and stationary, on buses, walls, and kiosks—celebrate the advent of the London-based architect. With a dinner given by the ministry of culture in her honor at the Castel Sant'Angelo, and the city's mayor officiating at the opening, Rome has greeted Hadid as if she represents the second coming of Bernini or Borromini.

This city, like no other, intuitively understands Hadid, and even needs her. Protecting its patrimony, Rome has a long history of jealously guarding its commissions, especially during the 20th century. Since the glory days of a Papacy that consciously used buildings to propagate faith and power, worldly architectural splendors have anticipated the glories of the beyond: Stone melts under heavenly light and vanishes into frescoes of thin air. Modernism—at least austere, low-calorie, Calvinist Modernism—never had enough flesh to stand up here to architectural Catholicism, so voluptuous in its curves and carnal in its materiality, yet ethereal in its aspirations.

Housed in old military barracks, the museum show is Hadid's largest to date. Although not a full retrospective, it adroitly highlights major moments in her career, from magisterial tableaux depicting The Peak, a club in the heights above Hong Kong, through the newest commission, a 400,000-square-foot addition to a BMW plant in Leipzig. Many of her early, unbuilt projects were developed thoroughly in model and on canvas, and they remain artifacts marking the trail of a perfectionist's driving search. Since her Vitra Fire Station established the buildability of her daring visions, her career has accelerated, and many projects are now complete or being built—including a garden pavilion in Weil am Rhein, a science museum in Wolfsburg, Germany, and the Rosenthal Center for Contemporary Art in Cincinnati,



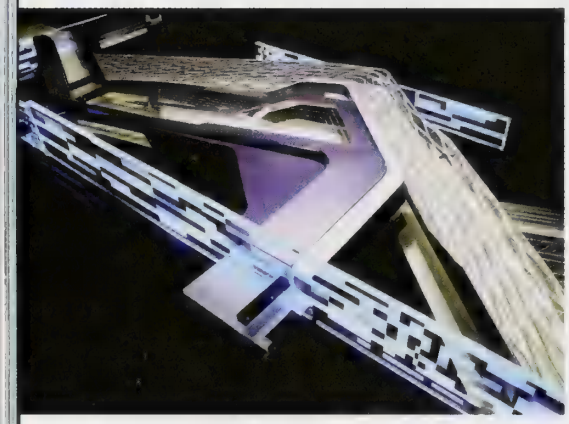


Joseph Giovannini writes about architecture for New York Magazine, The New York Times, *and others.*

all displayed in the show, among other projects. Hadid has made the transition from cult figure to builder without diminishing the intensity of her vision or research.

The show has a particular purpose. In 1999, Hadid won a competition to design the museum's new building within and among a complex of barracks near the old Olympic grounds in northern Rome. Hadid devotes a large explanatory section of the show to her design, with many models and tableaux, and as in many of her exhibition designs, she extracted ideas from projects displayed to design the installation itself, making the show a demonstration build-out as well as a freestanding installation.

The plan for the museum resembles the flowing circuits of a computer chip. Hadid takes this idea



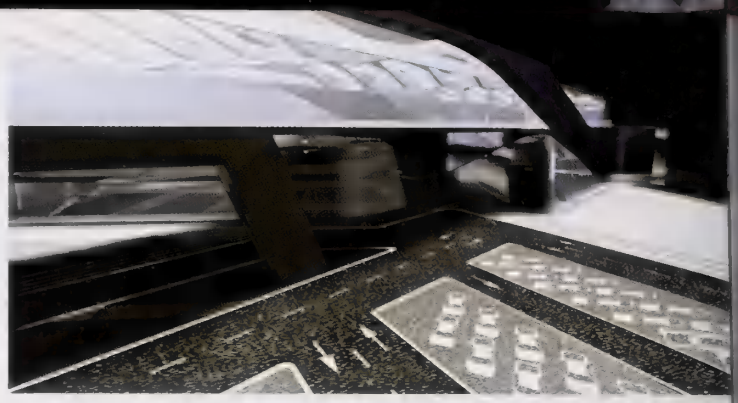
and threads tall curving walls through the cast-iron and masonry structure, establishing a continuum of mutating space and form. She grafts a dynamic system to the existing static one, turning the museum into a field of passages and pockets that changes direction and dimension. Overhead, sheet-rocked ribbons of wall, suspended from steel trusses, flow in a tango parallel to the full-height walls below. The tall walls lean in and out as they curve forward and away, creating convex and concave eddies that recall Borromini's own plays of form. The overhead ribbons offer unexpected display surfaces that Hadid deploys for secondary works—video projections, elevation drawings, prints. Ushered in by an undulating, leaning installation, visitors walk through on a self-guiding promenade.

Hadid is one of architecture's most gifted and original sculptors, but the plan for the museum eschews object creation in favor of the notion of a building as a field of movement. At the scale of the future museum, the striated plan bends and adapts pliantly to an irregular site. It doesn't preside over the streetscape, but shapes the whole site three-dimensionally as a system of passages—as though it were a vertically expanded, highly porous Piazza di Spagna.

The installation not only exhibits the planning of the future museum, to be started next year, but also posits a successful new paradigm for viewing art in something other than a white box. This is a show that addresses MoMA's conservative stand in its current expansion project, and it even comments on Gehry's Bilbao, where the flowing outdoor forms cede to largely conventional galleries inside.

Rome is the city that first introduced perception, and the phenomenology of viewing, as a subject in architecture. At the Palazzo Spada, Borromini created his funneling illusionistic colonnade, and at Sant'Ignazio, Padre Andrea Pozzo painted a deceptive trompe l'oeil dome true only to a single control point, but distorted otherwise. When seen from the Via Condotti, an obelisk locks the Spanish Steps on axis with the Trinità dei Monti, but seen from other angles, landings, balustrades, and stairs shift and reconfigure themselves like a Calder mobile, transforming the view into a moving experiential field. Picture becomes environment.

In the first tableaux depicting





Hadid's exhibition shows a variety of models, including those for BMW (left and above) and the Rosenthal Center for Contemporary Art (right).

The Peak, Hadid plays with shifts of perception that ultimately go back to the Roman tradition of applying three-dimensional drawing techniques to the third dimension itself. Her immediate inspiration, however, was Russian Suprematism, and in two vertical Peak canvases of 1983, *Slabs* and *Suprematist Snowstorm*, she paints axonometric panoramas of Hong Kong to create simultaneous multiperspectival views. She unlocks the canvas from the totalizing depth of one- and two-point perspective, creating contradictory depths in what emerges as a spatially indeterminate field. In some of her flyover urban tableaux, such as *Berlin Victoria*, she depicts always-changing aerial views of Berlin as an urban field. What the urban tableaux do not explicitly show is that the design of the buildings themselves embodies this multiperspectivalism. Hadid has unpinned space by removing the obelisk, releasing the buildings from fixity into play. People circulating through the constellation of parts come to feel that they, too, orbit.

The ideas Hadid is now realizing were foreshadowed early in her career. The Trafalgar Square project of 1985 posits a public promenade weaving through a suprastructure of loosely assembled volumes. Twenty years later this parti informs the museum now under construction in Cincinnati, where a promenade of discovery—what Hadid calls an "urban carpet"—winds its way into and through an array of detached and suspended galleries. Visiting a museum is about walking, and she motivates the visitor by turning the museum into an exploratorium where its design provokes curiosity.

Scratch the formal brilliance manifest everywhere here and find a massive amount of raw but inspired labor. The originality of her inquisitive design process allows her to see schemes in new ways. In one Plexiglas maquette, she models space rather than form by hollowing the transparent plastic to show a system of ramps and platforms within the space: Trapped in the model like cubic bubbles, void has become solid. Her unique paper reliefs, a hybrid of drawing and model, show buildings that project out from the picture plane rather than into its depth, in a form of counterperspective.

Hadid may have had a delayed start building, but clearly she was not idle. The particular triumph of this generous show is the foretaste of the new contemporary arts museum in Rome: She explains the future museum by doing it.

Meanwhile, the show makes Rome again relevant and contemporary. We emerge from the barracks with fresh insights into the city. The future museum builds on history, adding an appropriate and welcome new layer in what Hadid proves is Rome's living palimpsest. ■


I AM
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#19

At the Land of Three Lakes, Swiss Expo.02 floats a potpourri of architectural expressions

Exhibitions

By **Fred Bernstein**

DEPARTMENTS



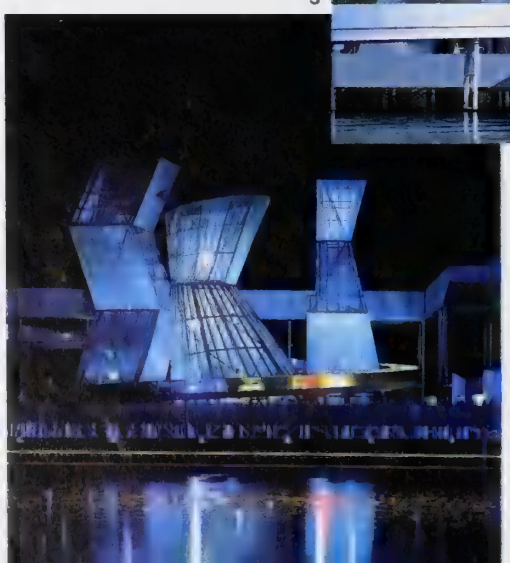
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Jean Nouvel's "Monolith" (1) is set adrift on Lake Morat; on shore, his piled-log cabin (2) forms an unconventional exhibition space. Visitors can wind their way around Coop Himmelb(l)au's towers of metal mesh at Biel (3), where at night, these monuments become lakeside beacons, beckoning exploration and discovery.

Swiss National Exposition, *commissioned by the Swiss Confederation, Martin Heller, artistic director; Biel, Murten, Neuchâtel, and Yverdon-les-Bains, Switzerland (until October 15, 2002).*

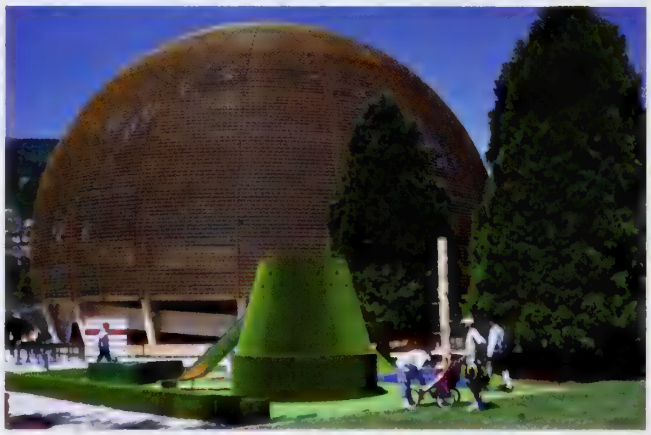
Remember when national expositions touted industry and agriculture? These days, Switzerland produces more self-abnegation than watches or cheese, judging from the themes of Swiss Expo.02. At various pavilions, visitors are made to experience pain; are insulted by actors playing government officials; are taunted by a machine (created by the Swiss National Bank) that shreds piles of money. The shredding is, by some accounts, a fitting metaphor for the fair, which cost over $1 billion—a staggering sum in a country of 7.2 million people, many of whom protested the expense.

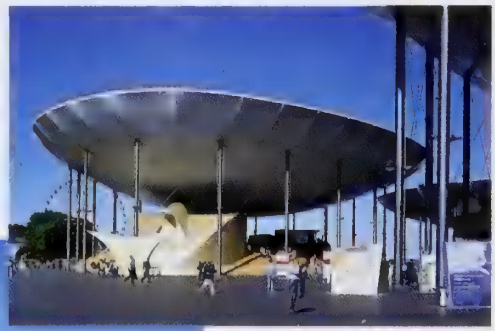
And yet, architecturally, the fair is a success. Creating structures that suggest ambivalence isn't easy, but several firms rose to the challenge. The Cloud (often referred to as Blur), Diller & Scofidio's much-publicized exoskeleton building, has become the symbol of Expo.02, and for good reason—it is technologically daring, experientially satisfying, and susceptible to multiple interpretations, all existential. Almost as attention-grabbing is Coop Himmelb(l)au's concoction: three mostly empty towers and a cantilevered roof over an otherwise pristine lake. "It's so un-Swiss, building a roof for the fish," joked Pidu Russek, one of the Expo's artistic

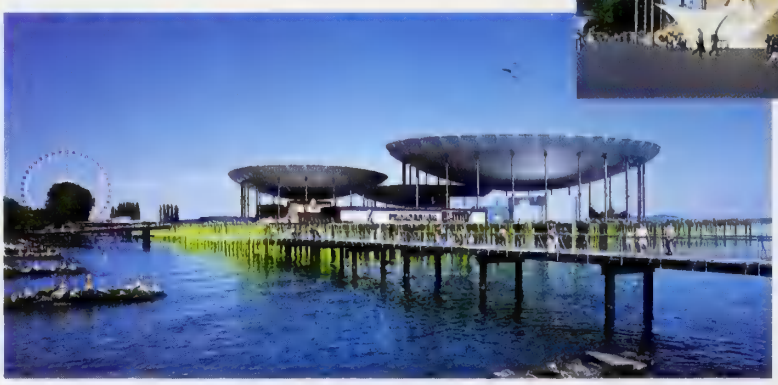
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Diller + Scofidio's "The Cloud" (4) shrouds itself in mist. Groupe H and Charpente Concept built "Le Palais de l'Equilibre" (5) to house an exhibition about the world's ecosystems. That site and the flying saucers of "Pebbles" (6), a marriage of nature and artifice, were conceived by Multipack. Visitors can stroll along the colorful "Oui!" pavilion (7) by Martin and Elisabeth Boesch. EXTASIA designed sweeping pavilion roofs in Yverdon-les-Bains (8).


8

directors. Pointlessness is the point. The towers, one of which resembles a nuclear power plant, are imposing and yet, because they're constructed of filigree metal, almost as ephemeral as The Cloud.

Among Switzerland's architectural stars, neither Mario Botta nor Peter Zumthor is represented, perhaps because their buildings would have felt too heavy for this lighter-than-air Expo. The more gauzy Herzog & de Meuron aren't here either, though their influence is everywhere (the "pain pavilion," made of metal straps, is a takeoff of their Signal Box in Basel.)

The fair is spread across four towns in a New York City–size region; in three of them, lakeside parks are dotted with assorted pavilions, World's Fair–style. By contrast, at the fourth town, Murten (known as Morat in French), a single architect, Jean Nouvel, was commissioned to transform a perfectly preserved medieval quarter. Nouvel's cartoony buildings look more like raw materials, piled up and waiting for construction to begin, than finished structures (in fact, they serve as high-tech galleries for installation art). A building disguised as a pile of logs contains pieces by, among others, Bill Viola. Yet none of the installations are as exciting as the architecture, which seems to ask whether the Swiss, with their postcard-perfect towns, can tolerate disorder. (Nouvel's best-known Expo structure, a rusted metal cube floating offshore, could be the container in which these ruffians arrived.)

The entire Expo will be demolished this fall. Some of the better buildings may have second lives (why not a Blur in Flushing Meadow Park?). But there is no way the accomplishment of Nouvel, who until now has been thought of as a maker of monuments, not environments, can be appreciated without making a visit to Murten, in the land of angst and Alps. ■

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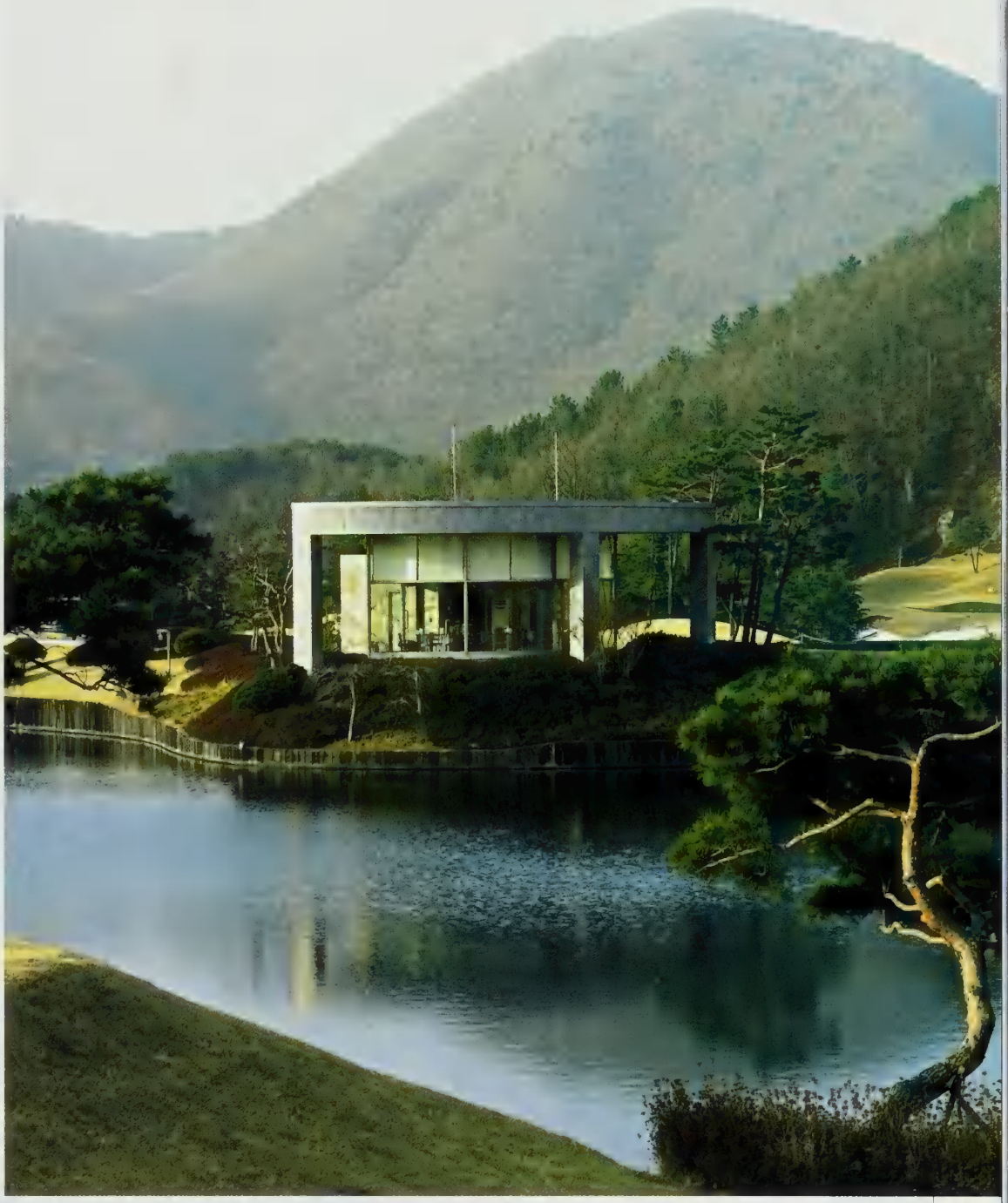
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Snapshot



By Ingrid Whitehead

Three for tee: An Asian golf course serves up tee houses

Like jewel boxes on a green velvet blanket, the Yangsan Adonis Golf Club's latest additions, three rest areas called "tee houses", sparkle in their lush, South Korean mountain setting. A testament to the clout of golf in Asia, which has gained momentum as a popular sport in the past 15 years, the owners of Yangsan Adonis sought a thoroughly Western aesthetic for the structures on their links.

John Friedman and Alice Kimm of John Friedman Alice Kimm Architects, located in Los Angeles, were happy to oblige when the client, a South Korean corporation, asked them to quickly design three tee houses in addition to the clubhouse they were finishing up on the 27-hole golf course. The program was to include a place where golfers could rest, grab a snack, use bathroom facilities, and escape from sudden thunderstorms.

"The client wanted schemes immediately," says John Friedman, "so we came up with several as a sketch exercise over two days." Kimm and Friedman admit that little time for choice and changes worked to their advantage in



this case. "We gave them some sketches, they said 'okay,' and that was that," says Kimm. AutoCAD drawings were e-mailed to the local executive architect, SAC International, the next day.

Two schemes were chosen. The first, used for two of the structures, is completely rectilinear. Conceived as a table, the design is simple—four legs and a roof. Contrasting sharply with the layered volumes and tilted roof of the clubhouse, the tee house establishes its own harmonious presence in the landscape. Because it is set within rolling mountains and could be hidden from view, Kimm and Friedman added a tall light monitor on top of the roof, which adds an element of verticality that contrasts with the horizontal plane of the tabletop. The site of the third building is adjacent to one of the many artificial lakes on the course. Therefore, the roof is curved on one side to reference the shape of the water's edge. In this scheme, the stone volume below projects out from under the roof, which was designed to sit higher than the structure's upper edge.

Constructed in just eight weeks, the tee houses are both elegant and practical and prove that sometimes first instincts can result in the best design. ■

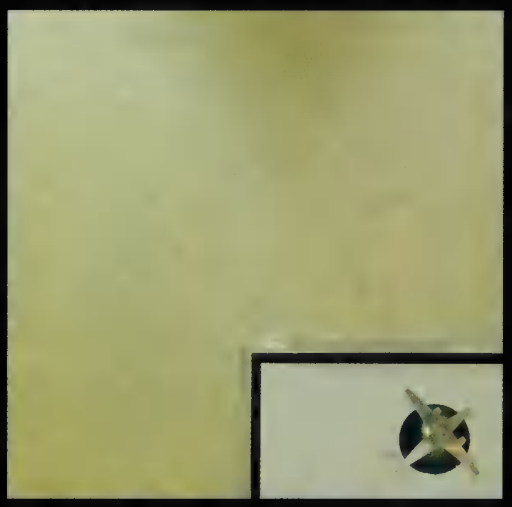
All three structures were designed with roofs clad in lead-coated copper, with two volumes underneath. One volume, clad in local granite, contains the rest rooms and service counter. The other houses the air-conditioned eating space and is surrounded by glass walls.















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With degree in hand, are students, such as those pictured here from City College of the City University of New York, ready to go to work in an office and make a contribution?

Educators discuss what all the controversy really means

B.Arch.? M.Arch.

By Andrea Oppenheimer Dean

A year ago, several RECORD *editors started out to report on the controversy surrounding whether or not the B.Arch. should be eliminated. We soon realized that at the root of this discussion lay a much larger argument about whether the familiar method used to teach architects is still appropriate today. In the process, we've interviewed a dozen architects and practitioners, talked to a dozen deans, and conducted a massive survey of all the schools. Here's what we learned.* Charles Linn, FAIA

Confusion and ambiguity surround architectural education, what it is and what it should be. Prospective doctors, dentists, and lawyers have a clear path: an undergraduate degree, then four years of medical or dental school, or three of law school. The coursework required for each of these occupations has long been standardized. But architecture schools, by design, have less-defined curricula, and schools are able to create programs tailored to the needs and interests of their students. Budding architects can begin studying their craft right after high school and make the B.Arch. their professional degree, or they

Contributing editor Andrea Oppenheimer Dean writes often for ARCHITECTURAL RECORD. *Managing senior editor Charles Linn, FAIA, coordinated this article.*

GUIDE TO ARCHITECTURE SCHOOLS

Archrecord.com is home to RECORD's first Architecture Education Survey, representing 48 bachelor, 51 B.Arch., and 137 M.Arch. degree programs, as well as demographic trends. Below are some examples. *David Sokol*

- By student count, Boston Architectural Center was the largest of the respondents, with 1,206 full-time-equivalent students. Morgan State University, with 56 full-time students, was the smallest.
- The three most expensive schools to respond were Massachusetts Institute of Technology ($28,230), Cornell University ($27,270), and Washington University in St. Louis ($26,900).
- Of the 137 M.Arch. programs represented in the survey, 16 are 4+1 year tracks, and 34 lead to nonprofessional or post-professional degrees.

Survey compiled and tabulated by David Sokol, with John Czarnecki and Christina Rogers

What's in a name?

THE DEBATE ABOUT WHAT THE FIRST PROFESSIONAL DEGREE SHOULD BE CALLED REFLECTS DIVERGENT OPINIONS ABOUT WHAT SHOULD BE TAUGHT.

can wait until graduate school and receive an M.Arch. as their professional degree. After that, the path to becoming an architect is reasonably standardized. Upon completing a carefully prescribed Intern Development Program (IDP), the architect-in-training is eligible to take national examinations, passage of which confers the title "architect."

The National Architectural Accrediting Board (NAAB) announced in 2000 that it would no longer accredit new B.Arch. programs and that it would stop accrediting existing B.Arch. programs after the year 2010. When this decision raised a hew and cry among many parties, the NAAB backed down and referred the matter back to the profession's four collateral organizations, the ACSA, AIA, AIAS, and NCARB, for review and for a decision at the NAAB 2003 Validation Conference. This provoked controversy among educators, students, and professionals: Will replacing the B.Arch. with an M.Arch. make for a "cheap" M. Arch., a merely dressed-up B.Arch.? Should the NAAB, perhaps, mandate a minimum time requirement for the M.Arch.?

These discussions are déjà vu all over again. Efforts to standardize what the architecture degree is called have been roiling since at least 1916, when ACSA's annual meeting included a vote to support the use of "Graduate of Architecture in place of the B.Arch." Eleven years later, attendees of ACSA's 1927 meeting heard Professor Joseph Hudnut of Columbia University insist that some system of "definite classification" was needed to allay bewilderment about "the significance of the various degrees given by architecture schools." Even today, confusion about degree designations, or degree nomenclature, remains one of architectural education's most stubborn and divisive issues.

One reason architecture has retained both its B.Arch. and M.Arch. is that they meet the needs of different kinds of students. For high school students who already know what they want and, perhaps, can't afford graduate education, a five-year professional degree has strong appeal. For those who decide on an architectural career while in college or later and can afford further schooling, the M.Arch. is the logical choice. That's why the nomenclature issue has been a dilemma for so long, says Marvin Malecha, FAIA, dean of North Carolina State University School of Architecture and a past president of ACSA. There is also the fact that each architecture program wants to control its own curriculum and what it calls its degree, says 2001–2002 ACSA president Frances Bronet, FAIA. (According to the NAAB, 2,773 students graduated from B.Arch. programs in 2001; 1,750 from M.Arch. programs.)

NAAB President Kenneth Schwartz, FAIA, opposes eliminating the B.Arch., mainly on grounds that it would reduce variety in the profession, since only universities—and not all universities—can offer master's programs. "In this diverse culture, no one size fits all," he says. Financial assistance is often targeted for undergraduates, and many students would find paying off student loans nearly impossible without a substantial increase in architectural salaries, an unlikely prospect. Dean Malecha asks, what is the fate of "students like me who grew up [working] in a gas station dreaming of becoming architects?" Architectural education, he concludes, should "address the whole student, not simply what they will do for a living. That leads you to a diversity of degrees, a diversity of talent, and a diversity of roles in the profession." AIA President Gordon Chong, FAIA, agrees, especially since, he says, fully a half of all architects are in nontraditional forms of practice and architecture must constantly reinvent itself to meet clients' changing needs.

Another argument against eliminating the B.Arch. is that it would put rural schools at a disadvantage. Architecture remains an urban profession, and land-grant and rural schools would have difficulty attracting practitioner-educators, according to University of Kansas dean John C. Gaunt. He also believes the best students will gravitate to urban schools.

John Meunier, AIA, dean of Arizona State's architecture school, is the main standard bearer for instituting a single professional degree, the M.Arch. He argues that eliminating the B.Arch. would have "real benefits for the image of the profession as a rigorous, knowledge-based discipline," and, he says, "experiments that merge the benefits of a continuous 5-year professional education and the more rigorous demands of a master's level education should be encouraged." He recommends grandfathering existing B.Arch. programs that can't make the transition, so long as they continue to meet the other conditions for accreditation by NAAB. Meunier counters the argument that changing the designation of the first professional degree would create a "cheap" M.Arch. by pointing out that many B.Arch. programs already exceed requirements for the M.A. or M.S., and all M.Arch. programs will have to fulfill their parent institution's requirements for the master's degree.

In 2001, NAAB surveyed 114 schools to weigh the possible effects of eliminating the B.Arch.; 77 schools—69 percent of accredited architecture schools—responded. Fifty disagreed with the statement that "the time and effort involved in pursuing a five-year course of study should lead to a Master of Architecture"; 43 percent agreed; and 7 percent were undecided. Roughly a third were considering changing their five-year B.Arch. program to an M.Arch. program; a third were not; a third said that such a change was not applicable. Nearly 75 percent agreed that "there is a qualitative difference between a student who earns a five-year B.Arch. and one who earns a 4+2 M.Arch.," and nearly 70 percent agreed that an M.Arch. should require "a different length or depth of study" than a B.Arch.

ACSA's Nomenclature Task Force is currently drafting a position paper for its regional fall meetings. The ACSA board will adopt a position

Deans: bureaucracy navigators, hustlers, administrators

By John E. Czarnecki, Assoc. AIA

With increasing bureaucracy and financial pressures coupled with decreasing leverage and power, the role of architecture school deans, especially in public colleges and universities, is rapidly changing. "The dean's job, like academic administration generally, has become much more complex," says Tom Fisher, dean of the University of Minnesota College of Architecture and Landscape Architecture since 1996. "In a given day, sometimes from one hour to the next, I have to be a thinker, a salesperson, a mentor, a booster, and a boss."

Financial challenges appear to be a primary frustration for deans. When Wayne Drummond, FAIA, began as an architecture school administrator in a public university in the late 1970s, fund-raising consumed only about eight to 10 percent of his time. Today, he says, he spends 35 to 40 percent of his time raising money as dean of the University of Nebraska College of Architecture. "The cost to run a school is radically different than when we were using bum wad and parallel bars," says Drummond. "We've moved from state supported to state assisted. State support is falling fairly rapidly for many colleges, and we're expected to generate that on our own."

With a slumping economy, numerous state budgets throughout the United States are running in the red. State legislatures are pulling the purse strings tighter for public colleges and universities, but education expenditures continue to increase as basic costs and technology demands rise. In general, public higher education is increasingly moving closer to a private school funding model, putting pressure on deans to raise funds to augment school budgets. No matter how fantastic an architect, scholar, or visionary a public university architecture school dean may be, now more than ever, he or she has to hustle for dollars.

(continued on page 88)

City College dean George Ranalli (left) has weathered the fund-raising storm.



in December, present it for endorsement at its meeting next spring, and prior to NAAB's 2003 Validation Conference will lobby the other collateral organizations to support it. The underlying issue ACSA must resolve is which aspects of the degree NAAB should regulate: its content, its title, and/or its duration. If ACSA decides NAAB should not regulate degree title, the B.Arch. will stay. A straw poll taken at ACSA's April 2002 meeting produced contradictory results. By narrow margins, the vote opposed restoring time-duration requirements for the M.Arch.—which opens the door to converting the five-year B.Arch. into an M.Arch. without significant changes. But respondents also wanted NAAB not to accept new applications for M.Arch. programs of fewer than six years—which would close the door to a five-year M.Arch. By substantial majorities, the vote was against accrediting the D.Arch. as a first professional degree and in favor of a post-professional degree as the terminal degree in architecture.

"The horse is out of the barn," says Dean Malecha of North Carolina State. "You can bet NAAB won't receive applications for new B.Arch. programs." Although few would disagree, the majority seems to oppose supplanting the B.Arch. NAAB president Kenneth Schwartz, FAIA, says that although the AIA and AIAS leadership have at times supported replacing the B.Arch. with an M.Arch., the rank and file isn't ready to part with the B.Arch.

In fact, Counsel House/Greenway's 2001 survey for *Design Intelligence* and the *Almanac of Architecture and Design*'s 3rd edition ranked Cornell's five-year program, which teaches architecture as a problem-solving discipline, number one among American architecture



THE RANK-AND-FILE ISN'T READY TO PART WITH THE B.ARCH.

schools for the third time. The survey, sent to nearly 3,000 design professionals and answered by 800, asked for names of "schools you feel have best prepared students for the entry into, and success in, the profession." Harvard's three-year graduate program followed Cornell for second place. The University of Cincinnati's 4+2 M.Arch. program ranked third, mainly for its "distinctive cooperative education curriculum," according to James Cramer, Hon. AIA, editor of *DesignIntelligence*. He notes that architecture students rank highest among Cincinnati's undergraduates in college test scores and high school records, and that the architecture curriculum includes jobs with pay in two dozen states and foreign countries.

Are students prepared to enter practice?

The confusion and controversy over what the architecture degree should be called reflects larger ongoing questions: With degree in hand, is a student ready to go to work in an office and make a contribution? How much should the employer be expected to teach when hiring a new graduate? Although Cornell, Harvard, Cincinnati, and other schools have solid reputations for preparing students for practice, there is plenty of grumbling among practitioners about the groundwork recent graduates have received. To see how those who simultaneously teach and work in private practice assess the situation, we conducted an impromptu survey, asking nine practitioner-educators to evaluate how well the schools prepare graduates for practice. Our interviewees were Stephen Kieran, FAIA, of KieranTimberlake Associates in Philadelphia and a professor at the University of Pennsylvania; Robert A.M. Stern, FAIA, Yale's architecture dean; John Anderson, FAIA, of AndersonMasonDale Architects in Denver and immediate past president of AIA; Sharon Carter Matthews, AIA, NAAB's executive director; Peter Steffian, FAIA, of Steffian Bradley Associates in Boston and NCARB's immediate past president; Herbert (Cal) Lewis, FAIA, of Herbert Lewis

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(continued from page 88) In the 12 years that Robert Greenstreet has been dean of the University of Wisconsin-Milwaukee School of Architecture and Urban Planning, total donations to the school have grown from $20,000 to nearly $500,000 annually, and alumni donations increased by more than 1,100 percent. "We create our edge of excellence through fund-raising," says Greenstreet, who spends 40 to 50 percent of his time fund-raising, as well as chairing Milwaukee's city-planning commission.

"The development of alternative sources of funding is a critical measure of a dean's success in times of severe economic challenge," says Marvin Malecha, FAIA, dean of the North Carolina State University School of Architecture since 1994. His school's annual fund-raising target has increased from $125,000 when he began to $465,000 today. Bob Mugerauer, dean of the University of Washington College of Architecture and Urban Planning since 2000, says fund-raising consumed 15 percent of his time when he began, takes about one third of his time today, and will likely demand at least half of his time when the school begins a capital campaign.

At the City College of the City University of New York, George Ranalli, dean since 1999 of the School of Architecture, Urban Design and Landscape Architecture, has had multiple hurdles—tight city and state budgets and competition with Columbia University and Cooper Union—for attention and resources. "We have an outreach organization, the City College Architectural Center (CCAC)," he says, "that has existed for more than two decades but was barely functioning financially when I arrived." Under a new director, the CCAC recently procured grants from the Rockefeller Brothers Fund and the National Endowment for the Arts totaling almost $500,000.

A complex job, everything to everyone

Although he believes the dean's job has fundamentally remained the same, John Meunier, AIA, who this summer ended a 15-year tenure as dean of the Arizona State University School of Architecture and 27 total years as an administrator, acknowledged a dean's current challenges. "Affirmative action and faculty governance eroded the dean as *pater familias*. The erosion of tax dollars in support of higher education has made deans more entrepreneurial. Information technology is challenging the norms of educational interaction and the autonomy of institutions. And lifelong learning has introduced an expanded student body with modified needs and expectations."

In addition to fund-raising needs, deans are now dealing with a larger-than- (continued on page 90)

Kruse Blunck Architecture in Des Moines and Iowa State's architecture chairman; John C. Gaunt, FAIA, the University of Kansas' architecture dean; Helene Dreiling, FAIA, coordinator and overseer of education for AIA; and John McCrae, FAIA head of RTKL's mentorship program and Mississippi State's former architecture dean.

Eight out of nine think America's architecture schools are doing a fairly good job. A caveat, they said, is that many firms have unrealistic expectations of new graduates and should expect to contribute heavily to their training. The opinion of Stephen Kieran, FAIA, was typical. Education's role, he said, is to "prepare architects for a life in architecture. Students are best served by learning how to think rather than how to do," especially since the majority probably won't wind up in conventional architectural practice. "We hire recent grads all the time," he said. "We have training programs. Almost to a person, new graduates soon become productive. Can you give them a project on their own? No. That's unrealistic." NAAB's executive director Matthews said, "When I was running a practice, more important than people who could design a parapet were those who could ask good questions, something the schools teach very well."

Yale dean Robert Stern asked, "Why should the schools teach working drawings? That's not what education is. It's learning methods of analysis. Should we introduce the idea of working drawings? Of course. We give them a sampling, but we don't produce people who can go into an office, sit down, and crank."

Part of the problem, said Matthews, is that architecture educators need to be more outspoken and clear about "what they do and what they're good at. Architecture is a discipline, as physics and law and medicine are disciplines." She sees architecture as a "system of thought," not necessarily a "way to pay the mortgage." But how can a firm afford to pay a living wage to an employee who can't produce work for which the firm can, in good conscience, bill a client? And should students be satisfied with



EDUCATORS SAY FIRMS HAVE UNREALISTIC EXPECTATIONS OF GRADS.

an education that provides "a system of thought" but not "a way to pay the mortgage?" And since many other forms of education can impart analytic problem-solving skills, how can architectural schooling justify its existence except by preparing students as architects? Moreover, many architects believe the best way to teach students how to think, design, and analyze problems is, precisely, by teaching them to produce drawings from which buildings can be constructed. How can students learn to think like architects without a good knowledge of how buildings go together?

Peter Steffian interrupts this flurry of questions by pointing out that since the 1996 publication of the Boyer Report (*Building Community: A New Future for Architecture Education and Practice*, by Ernest Boyer and Lee D. Mitgang of the Carnegie Foundation for the Advancement of Teaching), "there's been a shift. People in the academy are paying more attention to the [professional] practice issue." Perhaps, but NCARB's Architecture Practice Analysis Study of January 2001 concluded that educators still overestimate the schools' contribution to students' knowledge and skills and that practitioners believe students acquire most of the information and proficiency they need during internship. John Anderson further believes that "architecture schools are behind in their realization" that architecture has become an infinitely more complex, broader profession.

What's new about the debate?

The debate over architectural education has a few new wrinkles. Not only architectural practice but the buildings it produces are increasingly com-

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(continued from page 88) ever bureaucracy of constituencies and an accompanying decrease in decision-making latitude. Gone are the days of deans with broad powers who remained at the helm until retirement. "Now we are, in many ways, middle management," says Roger Schluntz, FAIA, dean of the University of New Mexico School of Architecture and Planning since 1999 and a former dean at the University of Miami. "Deans have to get consensus from below and approval from above and have the means to scramble for money to do anything. It's not all bad, but it's different. It used to be interesting and challenging. Now it's getting to be repetitive, argumentative, and tedious."

So why would anyone want to lead an architecture school today? "People have asked me why I am doing this at all," says Eric Owen Moss, FAIA, a well-known practicing architect who began as director at the Southern California Institute of Architecture earlier this year. "That's a fair question, and maybe, in the end, the answer is 'I don't know.' But because I don't know, I am willing to go into it for a few years and try to see whether there are lessons learned that can be passed along to students."

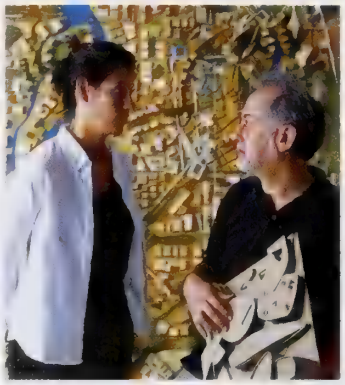
Deans switch schools

Increasing financial pressure is just one reason why a number of deans have moved from school to school in recent years. "Deans are switching positions to move to situations of greater resources," says Malecha. "There is a pecking order among schools related to opportunity, prestige, and influence."

According to survey information provided by the schools to RECORD, 19 schools of architecture—approximately one in six accredited schools in the United States—have selected new deans or equivalent directors since January 2001. In addition, the following schools are currently in the midst of a dean selection process: State University of New York at Buffalo, Arizona State, Syracuse University, and California State Polytechnic University at San Luis Obispo. Linda Sanders, FAIA, will step down as dean at California State Polytechnic University at Pomona at the end of this month, and Bernard Tschumi, FAIA, will end a 15-year tenure as dean—unusually long for a dean today—at Columbia University in spring 2003.

Greenstreet, who estimates that a dean's average tenure is 4.5 years, says, "There is greater pressure from upper-level administrators—who also have very short terms—and greater short-term demands for deans. We all have limited shelf lives."

RECORD interviewed a number of architecture school deans to gain insight on the challenges they face. Visit the "Interviews" section at www.archrecord.com for extended excerpts from their responses.



Schools should be encouraged to hire faculty who are or have been in practice.

plex. Architects need to know more than in the past. Familiarity with new communications technologies and globalization have become a must. And there is growing pressure, said Anderson, for architects "to address environmental and comfort issues and to create smart buildings that conserve energy." There is a need to create community, not just beautiful objects, he said. But the basic questions about architectural education remain: In what areas does it excel? Where is it falling short? How should it change? What barriers are preventing change? And what is the responsibility of firms in educating the young?

When asked to rate the schools' basic offerings on a scale of one to 10, our sample of practitioner-academics gave theory and studio high marks, but with reservations. All but two considered theory—the ideas underlying design, including esoterica—very important. Anderson applauded the studio system for instilling passion. AIA's Dreiling commended studio for teaching creative problem-solving. "But it's too all-consuming," Gaunt chimed in. "It's the basis of what we do and the enemy in terms of keeping us from learning everything else."

Stern pointed out that often studio is led by recent graduates with little experience who simply perpetuate what they themselves learned. "Mature professionals aren't as generous with their time for educating the young as they could be," he said.

NAAB's Matthews offered that faculty often do a poor job of communicating the value of studio and how students can make better use of it. For students who don't figure out how to cope with it, she says, studio is "the most anxiety-producing, most ambiguous setting." Matthews would like to



CAN THERE EVER BE ENOUGH TIME TO TEACH THEM EVERYTHING?

see the studio system become "more rational and less shaped by tradition."

Anderson would infuse studio with more teamwork, especially with allied professionals. But, said RTKL's McCrae, "we talk about collaboration more than we do it in practice or in education." Most faculty, Matthews contends, don't know how to teach collaborative skills. McCrae recommended that architecture schools not only look for ways to enrich the studio with more group learning and decision making but also to strip it of the "hair-shirt, it's-all-on-my-shoulders mentality." Innovation, he observed, usually comes from people working together.

Computers, professional practice

The nine practitioner-educators thought the schools do well in teaching computer skills and analysis. "A lot of it is student-driven," said Anderson. Stern protested that "in many architecture programs, use of digital media has cut young architects off from the techniques that have served the profession for thousands of years—sketching, measuring, knowing how big things are, making physical things, as opposed to pressing buttons and having preprogrammed things happen. It's like training a pianist by playing CDs." He also charged that computer analysis is supplanting other methods. Iowa's Cal Lewis agreed, warning that "computer skills must be viewed as a supplement, not in place of traditional skills. It's another layer."

Predictably, professional practice got lower grades than studio,

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theory, and computer skills. Those interviewed rated practice from two to eight (out of 10). They characterized as inadequate the usual three-credit course in practice, "made to be painful medicine for students whose hearts are in studio," as Gaunt described it. Kieran said he would like to see less emphasis on studio but admitted, "That's extraordinarily difficult, because studio is the environment in which architects thrive and [should be] learn[ing] teamwork."

The problem, said Dreiling, is an already jammed curriculum. She suggested integrating such practice-oriented skills as team-building, collaboration, and leadership into the studio. The AIA, she said, under leadership of the Large-Firm Roundtable, has initiated a program of case studies to introduce students "to the world of practice in a more real way." Gaunt hailed any attempt to expose students to the workings of organizations and business, though Stern warned that a curriculum totally grounded in real life would be "very limiting, very mundane. We try to instill how to question the client, the zoning, how to ask questions, how to make out-of-the-ordinary circumstances something extraordinary." Matthews maintained that students "know a lot more about practice than is presented at school. They work summers and intern, hook up with alumni, and the practice culture permeates school culture in many ways." A shirking of responsibility, you say?



Young architects should be learning teamwork in the studio environment.

Suggestions for fortifying students' exposure to professional practice included a formalized system of internships. A model, said Anderson, is the work-study program at the University of Cincinnati. Matthews, while saying she believed most students would benefit from work-study programs, opposed "cookie-cutter solutions."

An important conviction running through the comments of all nine interviewees was that educators and practitioners need to work together more closely. Schools should be encouraged, said Anderson, to hire faculty who are or have been in practice, something Stern thinks should be a requirement. The AIA, Dreiling said, doesn't now have an education policy but is developing one focused on "integrating practical experience into education." And last spring, NCARB, following up on its January 2001 finding (Architecture Practice Analysis Study) that "education and experience should be integrated—not separate," initiated an awards program that gives substantial monetary prizes for creative integration of practice and education in the academy.



RESEARCH IS SAID TO BE THE EDUCATIONAL SYSTEM'S WEAK LINK.

How about building science, research, and the humanities?

Knowledge about building science received an average of five out of 10. Iowa State's Lewis and the University of Kansas' Gaunt both said that, as with practice, their universities and others they know of are trying to integrate experience and knowledge about construction into the curriculum.

Research was deemed the weakest link in architectural education, receiving an average of three out of 10 points. The fault, said Dreiling, lies in the profession's lack of emphasis on research. "We're not even in the game," said Gaunt, "and very few architectural schools are." Lewis called research "the future of the profession," and the schools "the resource that can bring the intellectual and technological together." To work within a capitalist business environment, he said, "we're going to have to be able to quantify more and more of what we do. Being able to answer quantitative questions would empower us as a profession." Kieran, agreeing that it's imperative to raise the level of research conducted and taught by the schools, stressed that the construction industry lags far behind the automobile and other industries, and he blames a lack of research. "Unlike other industries," said McCrae, "we tend to reinvent the wheel rather than creating a database from which to draw." He cited the AIA's Large-Firm Roundtable's attempt to develop documented case studies as a move in the right direction.

The teaching of humanities, the interviewees indicated, varies widely from institution to institution. But most agreed with Gaunt that students "are not learning enough history, civics, geography, sociology, and about other cultures," and that students leave school with poor communications skills. "Once you get past the 20 or 30 leading architects," Stern argued, "the rest of the profession tends to be marginalized because it's not respected, because it isn't as well-educated as other professions. The system encourages students to study architecture at too young an age when they are ill-prepared in their knowledge of the world in its complexities." Stern is convinced that architecture, like most other professional disciplines, should be taught only in graduate programs following a B.A. or B.S. "We don't train doctors or lawyers straight out of high school. The Harvard Business School doesn't accept students until they've worked in the field for three or four years. That's the way to do it."

Barriers to change, and the firms' responsibility to teach

Architecture programs tend to be insular, the interviewees agreed, and faculties—especially heavily tenured ones—resist change, but no more so than in other fields, and less so than in the past, said Steffian. Stern believes that the main obstacle to change is that "our profession doesn't think of itself totally as a profession. We're still caught in being a craft or a trade."

Another, perhaps related, impediment is posed by the fractious nature of the so-called collateral organizations, AIA, AIAS, ACSA, NAAB, and NCARB. Lewis said that ACSA, especially, is a collection of individuals rather than a group, which, if true, renders it powerless as a force for change within NAAB, whose board includes representatives from all five organizations. NAAB's Matthews is trying to forge the collaterals into more of a collective but lamented, "They're architects." NAAB, said Dreiling, "is coming along." It recently raised its accreditation requirements in digital experience and professional practice. McCrae gives NAAB high marks for "keeping abreast of change" and having "open dialogue."

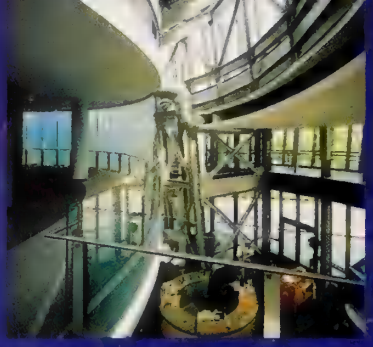
"We'll do much better when practicing architects don't have unreasonable expectations of what recent graduates should be able to do, and when educators prepare them better to integrate into firms," concluded Dean Gaunt. McCrae further stressed that practitioners "should be more engaged in the educational process rather than placing the burden on the schools alone." The consensus was that firms must think of themselves as the next step in an unending education process and take mentorship much more seriously. "A good firm is a teaching firm," said Stephen Kieran. ■



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Small, medium, and large
Which size is ideal for the future?

By Jane F. Kolleeny and Charles Linn, FAIA

In this final installment of our three-part series on firm size, we're looking ahead. Several experts tell us how they believe globalization and the information age will drive changes in firm size in the future. We also explore the effect that computers and the Web have had in leveling the playing field between large and small firms, and we examine what happens to a firm's size as the company matures and one generation succeeds another. Finally, we speculate on how a possible shortage of architecture grads could affect our profession in the future.

How experts predict firms will morph in the 21st century

The rate of change in our world has been pushed to a furious pace by technical innovation. How will size affect the evolution of the architectural firm? Frank Stasiowski, FAIA, president and founder of PSMJ Resources, predicts that the profession will be turned upside down. Architects will continue to outsource more and more of their contract documents to production houses overseas, where they can be done for a fraction of what they cost here. Eventually, he says, even these workers will be replaced by "highly evolved, user-friendly computer tools. These will render such practitioners useless in a self-service design environment." This would shift what architects offer their clients away from creating a product—drawings and specifications—toward being service providers: Architects will produce information and trade in intellectual capital.

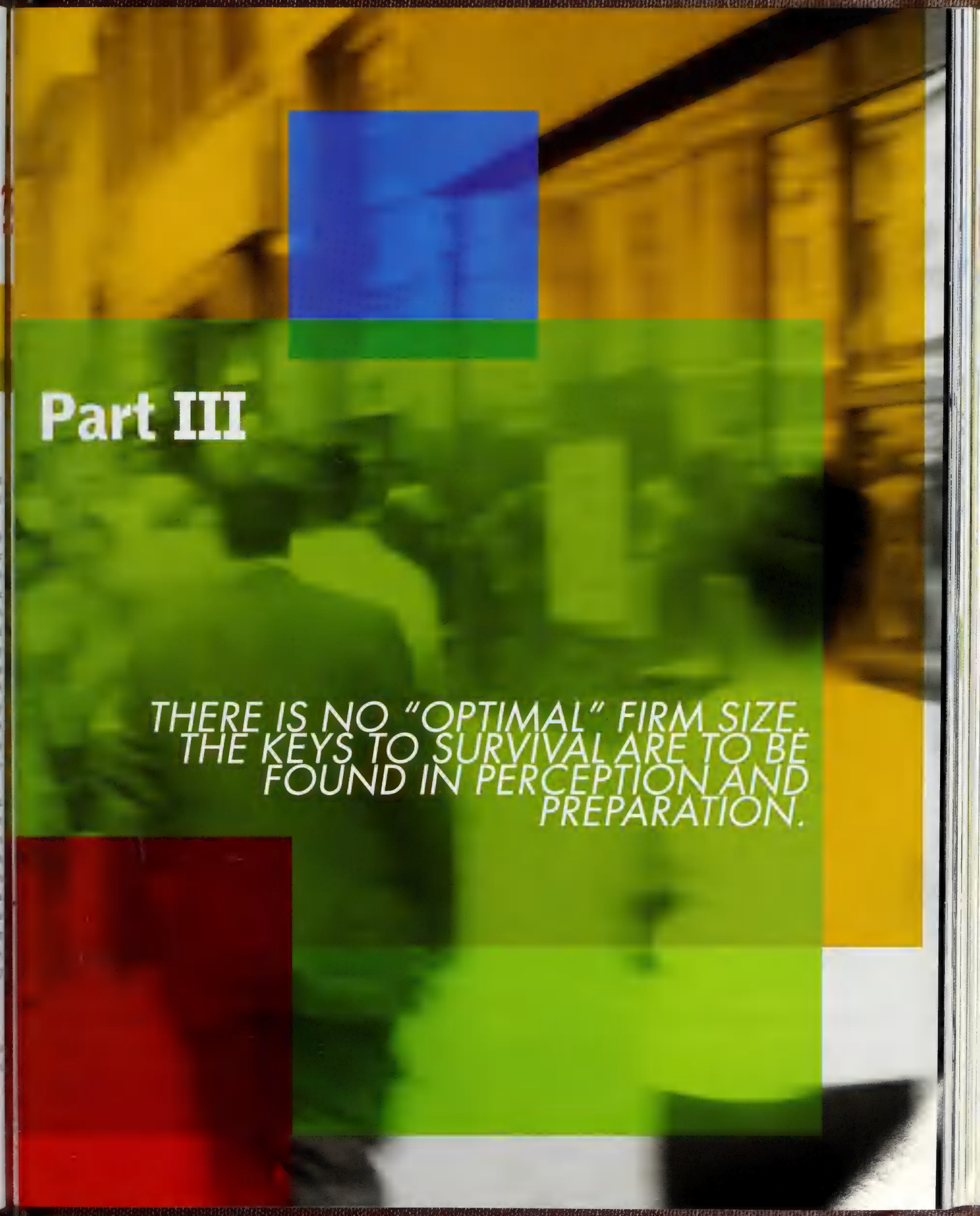
Stasiowski tells us "not to rely on the traditional subcontracting model in the future … emphasis will shift to a fluid organization of consultant/project specialists who come together in targeted teams." He sees a future where many offices will be virtual. Firms may have a storefront, but a physical desk for employees will be neither necessary nor desirable. "Look for laptop-size or smaller devices to become the next office. Itinerant knowledge workers who gather quickly anywhere in the world to accomplish projects will put an end to the traditional workplace. In this arrangement, the individual becomes the company, representing it everywhere," he continues.

Not everyone agrees. Hugh Hochberg of the Coxe Group recalls that 20 years ago visionaries predicted that the firms we've described in our series as medium and large were on the verge of extinction. According to Hochberg, those futurists believed that "advances in technology and the associated costs, larger projects, increased project complexity, the need to bring more resources to bear on each project, and globalization spelled doom for firms roughly defined as those with 35 to 100 staff." Instead, many small firms grew into medium-size practices during the building boom that occurred late in the 1990s and have prospered since. According to the *AIA Firm Survey for 2000–2002*, firms with 20 or more employees have steadily increased from 5 percent of firms in 1990 to 13 percent of firms in 1999. Some of the growth has been through mergers and acquisitions and some has been through hiring staff. Large firms have gotten larger, notwithstanding the very recent economic dip.

Hochberg and his Coxe Group colleague Peter Piven, FAIA, spin the future a bit more conservatively than Stasiowski. They believe the future is bright for firms of any size, partly because clients like to hire architects that mimic their own size and temperament; for example, corporate clients are attracted to large, corporate architectural firms, although we observe that occasionally such clients will hire a small, well-known firm for its "star appeal." Modest-size clients often prefer relationships with small firms because they can provide more personalized service. Hochberg and Piven also note that "technological advances will allow increased effectiveness, communications, and project exploration for any size firm, and technology itself is becoming increasingly more cost-effective."

Wired and getting more wired

It seems reasonable to think that Hochberg and Piven will be right in the short term, but that in some cases reality has already tilted toward



Part III

THERE IS NO "OPTIMAL" FIRM SIZE. THE KEYS TO SURVIVAL ARE TO BE FOUND IN PERCEPTION AND PREPARATION.



Stasiowski's predictions. One thing we can say for sure is that the profession has computerized more thoroughly and rapidly than anyone would have thought possible 25 years ago. Our Gen-X architects-in-training exploit the opportunities presented by technology much more readily than managers born in the Baby Boom years, who became architects well before e-mail, the Web, cell phones, handheld organizers, and CAD were common elements in the workplace. Piven says, "What technology has fostered is higher quality, ease in dealing with repetitive situations, and greater complexity." He's right. Once-technophobic 40+-year-olds from firms of all sizes have become inseparable from their laptops. According to Zweig White's 2001 *Principals, Partners and Owners Survey*, 41 percent of principals reported using a laptop, up from 22 percent in 1997; 65 percent of principals have remote access to their computer network, up from 58 percent the previous year; and 89 percent of principals have a cell phone provided by their company, a trend that has more than doubled from 40 percent 10 years ago.

What the Internet and personal computers have done is leveled the playing field, making extremely sophisticated technology available for low cost among firms of all sizes. Large firms have the financial resources to build a significant digital infrastructure and to research new tools for design and practice management, but small firms can gain worldwide exposure on the Web. Jennifer Greene, marketing director of Kliment Halsband Architects, New York City, with 35 employees, says, "We've had a Web site for a long time that we constantly refer people to; they see a catalog of visual images. For a modest-size firm, it looks quite good." Of our 52 surveyed firms, only three did not have Web sites.

While costs for equipment have continued to decline, software is still expensive, as is the cost of the necessary personnel to purchase, assemble, train staff to use, and manage in general the digital tools of an office. Indeed, for the 40 respondents to our survey, costs associated with IT staff and equipment averaged 4 percent of firm revenue—a healthy chunk. Most firms told us their dedicated IT managers spend most of their time on general problem-solving, troubleshooting hardware, translations of files among incompatible software programs, and virus checking and monitoring.

Smaller firms are at a relative disadvantage when it comes to finding and hiring people to maintain computers and train staff. They do it by hiring part-time consultants or by having the firm's tech-savvy staffers devote most of their time to this area. Scott McElrath of Dangerous Architects, in Chelsea, Michigan, with 5 on staff, points out that "the technology learning curve is steeper in a small firm as there are few peers with which to discuss the latest information."

Centerbrook Architects, in Centerbrook, Connecticut, with 75 employees, has found that the best people on CAD are the architects themselves, who don't particularly want to spend their day training others but want to design projects. They have taken an innovative approach, with a program they call ERIC. Jim C. Childress, FAIA, says, "ERIC means 'emergency response in CAD' " and was named after an employee. "We designate one of the better CAD operators each day to be ERIC and for that day they are responsible for helping anyone with CAD problems. This spreads out the responsibility and also, with time, assures that CAD knowledge will grow and be disseminated throughout the office."

How firm size affects ownership transition

Whole volumes have been written about what is required for adding new principals to a firm, as well as accomplishing successful ownership transitions. According to PSMJ Resources consultant Sandy Blaha, "Leadership transition is usually a three- to 10-year process that involves the selection of likely candidates, capacity building, and gradual testing and advancement of a visionary entrepreneur." It takes employees years to absorb a firm's culture, to establish relationships with its clients, and to learn to manage. It cannot be accomplished by simply adding newly minted architectural graduates.

Beyond this, the most important factor for small- and medium-size firms planning an ownership transition is the employment of talented people whose beliefs and values are compatible with those of the current owners. Stephen Kliment, FAIA, editor of *Principal's Report*, says, "Succession in a small firm (1 to 19 employees) is linked tightly to the outlook, values, and personality of the founding partners, especially if the firm has not expanded significantly and is still subject to the sway and whims of the founding leadership." Indeed, a firm like this might not move forward into a succession plan because, Kliment says, "the leaders of such a firm are likely to balk, if not actually be alarmed, fearing the value they brought with them at the founding will be diluted or atrophy under new leadership." In

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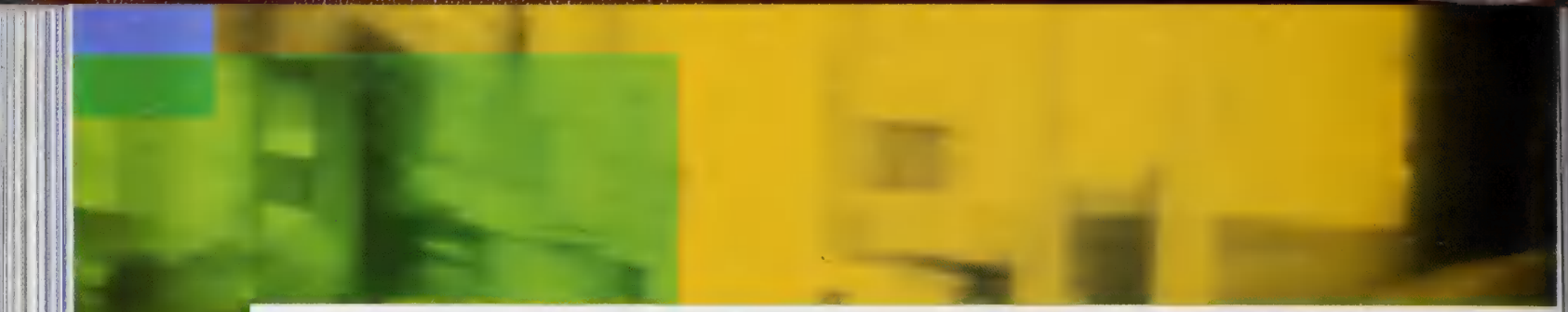
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addition, the smallest firms may not have enough assets to make an ownership transition worthwhile for its employees, who may feel they're better off starting from scratch.

A medium-size firm (20 to 49 employees), which may have three to five partners, is more likely to have the means for succession. Although firms of this size may not have been around as long as some of the larger firms, many have partners of different generations who have risen in the ranks over time, making transition more feasible and the extension of responsibility to others more natural. They also may have physical assets, a client base, culture, and reputation—even the firm's name may be established as a brand and carry its own equity.

Of the 52 firms we surveyed, about half have leadership transition plans, and most of these are among the large and extra-large firms. Those that are large (49 to 150) often have strong leaders who combine their personal management strengths with the efficiency and structure of corporate environments. Many are old enough that ownership transitions have occurred before and succession policies have had a chance to evolve enough so that those involved know what to expect.

Some large firms are moving away from the kind of structure that depends on a few senior partners to broader-based ownership. For example, in 2001, Cooper Robertson Partners (CRP), in New York City, with 75 employees, implemented the firm's first ownership transition plan. "The firm consisted of seven partners prior to 2001 but now has 25 owners with various percentages of ownership. As part of the transition plan, CRP instituted a new studio system, consisting of two studios, each run by a studio head and assisted by a business, market, and technical lead, mostly staffed by the new partners," says principal Karen Cooper. While just under a year into the transition, workers say that transferring much of the decision making to the studio level has improved work process and product.

Many extra-large firms are market-driven. The rules about planning for ownership succession and nurturing future leaders still apply, but the ability of the firm to manage its finances, its success in marketing, and the health of its markets may have just as great an influence on its ability to survive into successive generations as who is leading it.

Are there enough architects to go around?

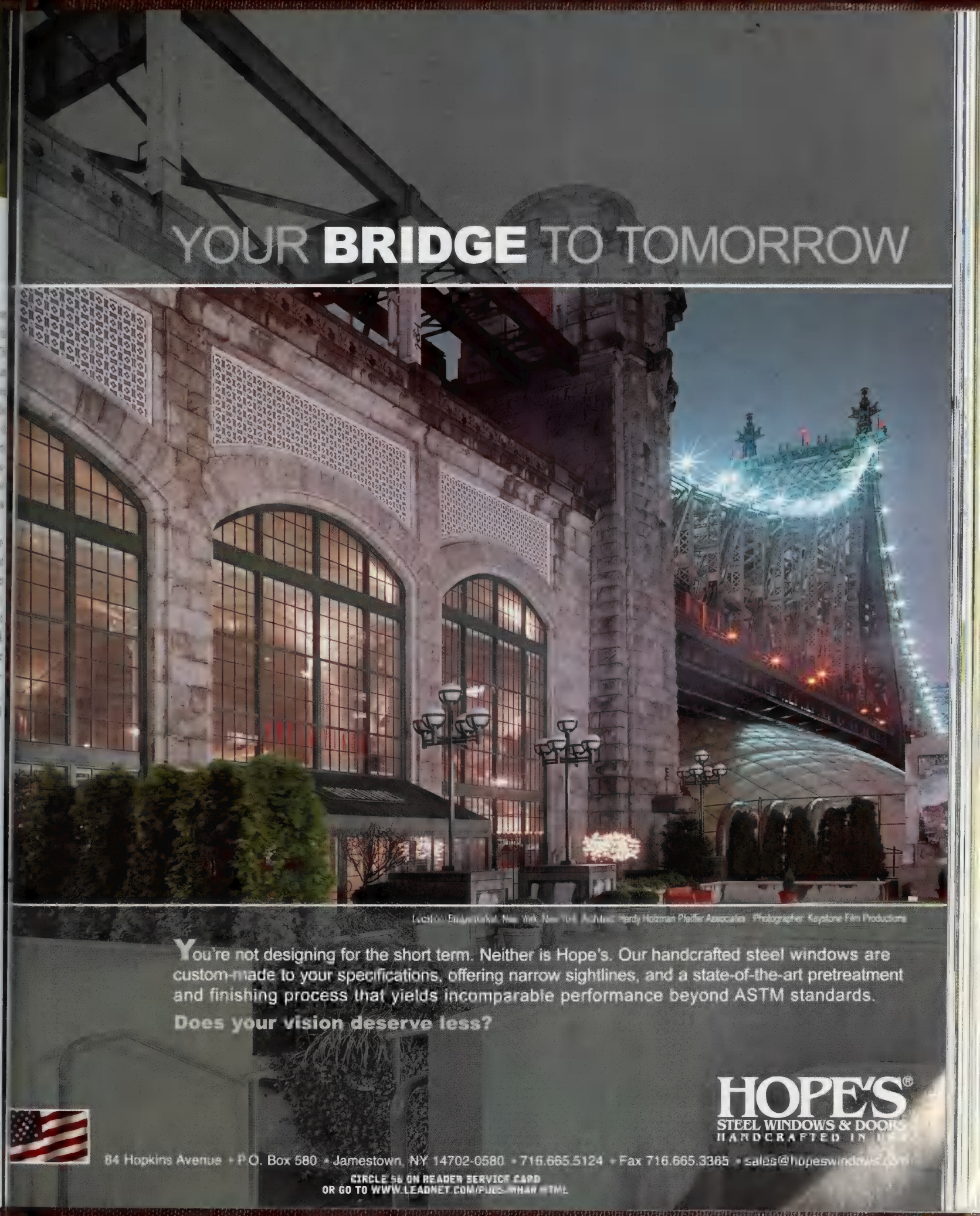
No matter how brilliantly a firm's managers structure their succession, they have to have someone to pass the business to. But there are fewer successors than might commonly be believed. According to the *2000–2001 NAAB Survey*, there were 2,773 B.Arch. degrees and 1,750 M.Arch. degrees awarded in 2001. Based on AIA's estimates, there are between 20,000 to 22,000 architectural firms in the U.S. If each of these firms could have an equal portion of the graduates available (and also assuming that humans are divisible), each could have about 13 percent of a person holding a bachelor's degree from this class, and about 9 percent of a person holding a master's degree. Of course, cutting people into fractions is absurd, but the statistics highlight one of the misconceptions of our profession, that colleges produce too many graduates. In fact, we saw in the late 1990s that there were not enough graduates to go around.

In addition, many talented architecture grads are pursuing alternate career paths. Management consultant Kerry Harding, president of The Talent Bank, which focuses on architecture, talks about who besides architectural firms are hiring architects. "The large management consulting firms like these young architects because they're great problem-solvers, they listen and communicate well, and they're quick studies." He continues: "Some of the top design talent is migrating to the West Coast to work for entertainment companies that do computer animation, like Pixar, who did *Toy Story*, and Industrial Light and Magic, George Lucas's company that did *Star Wars*. The 3D modeling skill learned in architecture school is merely a means to an end in an architectural firm; at these companies, it is the end product—and they often get paid triple the salary!" With as many as half of all architecture graduates moving into nontraditional career paths, it seems possible that there may be a professionwide brain drain in our future.

AS GRADUATES PURSUE OTHER CAREERS, COULD THERE BE A BRAIN DRAIN IN OUR FUTURE?

The beauty of architectural practice: no size fits all

After all of the study we've done on firm size while preparing this article, it seems to us that the firms that always survive and prosper in changing times are not distinguished by their size. Rather, they are those that are managed by principals who quickly perceive what is changing about the world around them and adapt to it nimbly and intelligently. One of the great things about our profession is that it can be successfully pursued by firms of all sizes—small, medium, and large. ■



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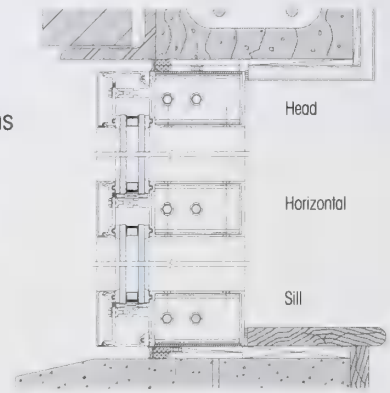


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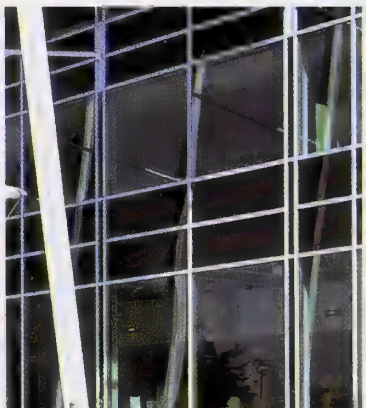
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City Limits:

Street-smart designs to transform the urban block

By Robert Ivy, FAIA

American architecture lives. While bold new work may not predominate in contemporary construction, architects and their clients regularly produce world-class projects that challenge our thinking, asking us to reassess where we live. The best new American work speaks a contemporary language with no predominant style, on block after block across the continent.

The American City, not the 'burbs, may be the most fertile proving ground for new buildings. After all, context and constraint, two defining characteristics of design, arrive built-in with any formal urban program. As the projects in this issue attest, when placed in a pressurized urban crucible and leavened with creativity, the results can really cook.

No more so than in Queens, the burgeoning borough across the East River from Manhattan, which has attempted a self-generated transformation into an arts mecca (think PS.1 and the Isamu Noguchi Garden Museum) at Long Island City. The latest entrant into the field, the Museum of Modern Art, may effect the greatest perceptual shift. MoMA's transmigration inspires us to take the train, leading us from the museum's chaste, evolving paradise on 53rd Street to the grit and electricity of the real world. Michael Maltzan and Cooper, Robertson, & Partner's morphing of this former factory building into the Big Blue Box brings an L.A. zest that reflects the kinetic sweep of the broad U.S.A.



The view from the No. 7 train in Queens with a glance toward MoMA's new digs.

Speaking of constraints, whoever heard of a major structure only 25 feet wide? Raimund Abraham has managed a tour de force at the Austrian Cultural Forum, sandwiching ideas, presence, and even personality into a tiny slice that could have been easily discarded as another bland sliver. The density of the ideas present in this one risk-taking project changes our perspective, forcing us into a new appraisal of the midtown block. Highly detailed, craftsmanlike, memorable, the Forum offers a counterpoise to MoMA's free and easy transitional home.

All is not New York Sturm und Drang. American architecture spans a range of stylistic choices, from free-flowing Expressionism to neo-Modern, particularly in two West Coast projects—Eric Owen Moss's latest addition to the Samitaur Complex and Stanley Saitowitz's lofts in urbane San Francisco. For Moss, this factorylike collection for a single client has once again allowed him to attempt what few of us would dare, and the result is a whirling architectural expression, with a nod back toward Eric Mendelsohn, early in the 20th century; Saitowitz, by contrast, has taken the rigors of boxy Modernism and turned repetition into an art form with new residential units for the city street.

These highly particular examples do not stand for all American architectural design; instead, they yaw between coastal extremes. The ideas expressed may provoke others toward architectural investigation in neighborhoods ready for refreshment. The country's true building portrait, and our architectural profile, lies somewhere nearer the midcontinent, perhaps in Kansas, which we leave for another day. ■



Looking out of the No. 7 train, visitors first see the museum from above. As it appears along Queens Boulevard (below), the building could still be a factory. Only at the entrance (opposite) is its new use apparent.



Michael **Maltzan** and **Cooper, Robertson** turn an old staple factory into **MoMA QNS** by bringing the industrial landscape inside

By Clifford A. Pearson

The experience begins in Manhattan, where visitors pick up the No. 7 train and head across the East River to an industrial landscape of factories, warehouses, and Dominican diners. The trip, which takes just 15 minutes, turns out to be the key to understanding the Museum of Modern Art's temporary new home in Queens—explaining the building's sense of place, space, and time. For this piece of architecture is all about movement, both physical and metaphoric—not bad for a big flat box with precious few openings in it.

While others looked at the site and saw an urban hinterland on the wrong side of the river, Los Angeles architect Michael Maltzan saw the Long Island City area of Queens as a dynamic landscape, "a place of commerce and exchange, constantly in flux." Maltzan referred to it as "a middle landscape, somewhere between urban and suburban" and appreciated its thriving mix of Latin American, Middle Eastern, and Eastern European businesses, as well as its growing concentration of cultural institutions (including MoMA's sister museum P.S.1, the Isamu Noguchi Garden Museum, and the Socrates Sculpture Park). The building that Maltzan designed with Scott Newman, AIA, of Cooper, Robertson & Partners taps into this heterogeneous context and brings indoors the spirit of the elevated rail line that rumbles above the neighborhood's rooftops.

Necessitated by a $750 million expansion that has closed the museum's complex on West 53rd Street in Manhattan, MoMA QNS is an intriguing hybrid: a temporary venue for exhibitions and a permanent storage facility for an expanding art collection. Newman is the one who first imagined MoMA in Queens, an idea that sounded crazy just a few years ago. Charged with developing a master plan for the museum's facilities, he recommended buying an old Swingline staple factory on 33rd Street off Queens Boulevard. At 160,000 square feet, the building could accommodate the museum's long-term storage needs while offering a short-term home for exhibitions until the supersize MoMA in Manhattan, designed by Yoshio Taniguchi, opens in 2005. "When it was first suggested, I couldn't think of one reason to move to Queens," admits Ronald Lauder, the chairman of MoMA's board of trustees. "Now I can't think of a better place to be."

While Cooper, Robertson served as the architect for the building (including the storage and staff spaces), MoMA brought in Maltzan as architect for the public spaces (including the lobby and roofscape). Both firms worked on the exterior of the building.

"At first, the temporary nature of the project was the most fascinating," recalls Maltzan. "But eventually, I realized the building needed

Project: *MoMA QNS, Long Island City, New York*
Architect (including library, collections areas, building exterior): *Cooper, Robertson & Partners—Scott Newman, AIA, partner in charge; Adele Finer, AIA, project manager; Ken Dietz, Anh Truong-Montgomery, Hiro Hayakawa, Eric Boorstyn, Hasti Azar, Weifang Lin, project team*
Architect for public spaces (including lobby, roofscape, building exterior): *Michael Maltzan Architecture—Michael Maltzan, AIA, principal; Kurt Sattler, project designer; Brian Cavanaugh, project manager; Dana Bauer, Nora Gorden, Michael Schulman, project team*
Engineers: *Goldman Copeland (m/e/p); De Nardis (structural)*
General contractor: *Turner Construction Co.*





The main entrance on 33rd Street was a loading dock when staples were made here and will become one again when art storage becomes the building's main function after 2005.


NO STANDING
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to be temporal as much as temporary." In other words, it needed to embody the notion of movement through space and time. "The temporal space starts in Manhattan when the visitor gets on the train and continues all the way to the art on the walls of our building," explains Maltzan. "I didn't want the architecture to be a threshold or a line of separation. Rather, I wanted to create a continuous experience for the visitor."

Although there is talk of MoMA maintaining some kind of exhibition presence in the Queens building even after the Taniguchi building opens in 2005, Maltzan notes the power that fleeting pieces of architecture can have, citing Alvar Aalto's Finnish Pavilion at the 1964 World's Fair, also in Queens. "Aalto's design doesn't go away in people's minds; it has a permanent presence." For his MoMA QNS project to be complete, for it to come full cycle, says Maltzan, "it needs to be ripped out" in 2005. "What we did was design an architectural infrastructure," explains Newman. "While the building is a permanent part of MoMA, it needs to change over time," adds Newman.

IT NEEDED TO BE BOTH AN OBJECT AND A FABRIC BUILDING, FITTING IN BUT OFFERING AN INTENSIFIED EXPERIENCE.

Occupying "the middle landscape" without dominating or disappearing within it turned out to be challenging. "It needed to be both an object and a fabric building," states Maltzan. To catch people's attention on the subway train, the architects painted the building's rooftop mechanical enclosures so they work as a sort of Cubist sign, appearing first as just pieces of letters and then snapping into place as the MoMA logo when the train pulls into the 33rd Street station. The building itself, though, remains a basic box, reclad with EIFS to create a tight weather seal for protecting the Picassos and Matisses inside. While inspired by the staple factory's glazed-blue brick, Maltzan and Newman "intensified" the blue of the new exterior and added a line of fluorescent tubes running along a steel armature projecting 6 feet from the face of the building. The saturated color of the building and the syncopated rhythm of the lighting serve as the museum's basic exterior signage. Only when visitors get close to the building's entrance do they see the institution's logo sandblasted on sliding glass doors.

Once inside, visitors encounter a series of ramps and stairs, along with angled walls and ceilings that set in motion the old factory's vast enclosure. "We tried to create a topography within a large horizontal space," says Maltzan. A narrow slot between two walls offers an immediate glimpse of Picasso's *Les Demoiselles d'Avignon* (one of the museum's signature paintings), but the entry ramp quickly turns 90 degrees and takes visitors past a coat-check area to the spacious lobby. Overlooking this space is a bookstore and café on a mezzanine level, accessed by either a stair near the entry or a switchback ramp at the south end of the lobby. Maltzan provides a visual anchor to the entry sequence in the form of a great white box emerging from the gallery spaces and hanging above the





Video images can be projected on the tilted box defining the project space (left and opposite). Neutral colors and industrial materials provide a flexible setting for art, including a current show of the museum's collection of cars (above).

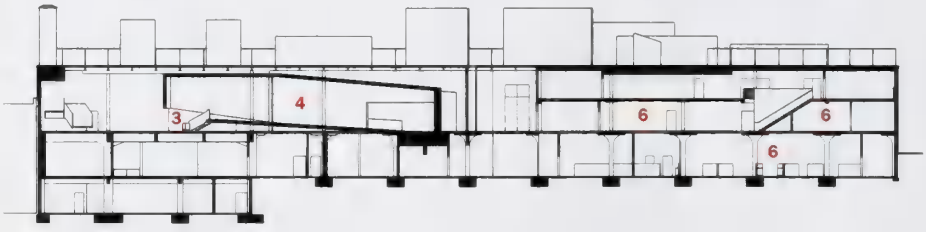


The main public area centers around a ticket desk and a "project" space behind it. A wide ramp leads from the visitors entrance past a mezzanine with a café and bookstore.









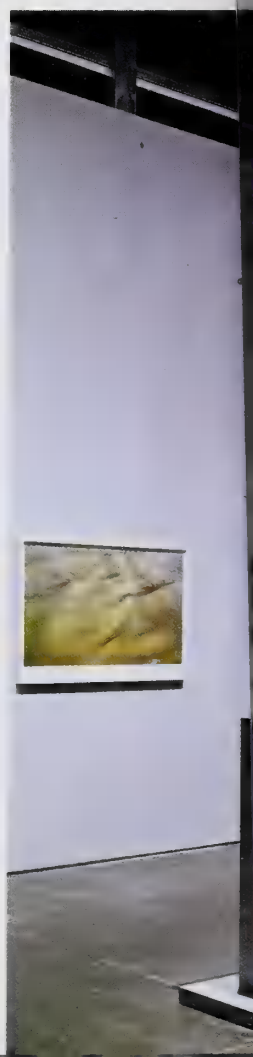
NORTH-SOUTH SECTION



GROUND FLOOR

N 0 30 FT. 9 M.

1. *Visitors entry*
2. *Coat check*
3. *Tickets*
4. *Project space*
5. *Exhibition*
6. *Staff*
7. *Staff entry*





Removed from the refined galleries of the museum's home in Manhattan, well-known artwork seems new again (opposite and below). Support spaces with oversize doors provide access to exhibition areas (opposite, top right), while a reading room (right) serves a library and archives with 180,000 volumes.



ticket counter. The box, which encloses a "project" space for exhibiting new art and videos, acts almost like a large, gentle whale sticking its head into the lobby and opening its mouth above the ticket desk. Views around and below the box create a sense of permeability, offering a continuous flow of spaces rather than a separation between front-of-house and back.

Beyond the lobby lies 25,000 square feet of flexible exhibition space, which can be divided as needed by interior partitions. When it opened at the end of June, the museum showed off the six automobiles in its design collection, two temporary exhibitions, and a sampling of works from its permanent collection. Industrial materials such as concrete floors and exposed ductwork, along with 21-foot-high ceilings, provide a pleasantly raw setting for the art, an interesting change from the refined galleries the museum had on 53rd Street.

What the public doesn't see is also impressive in a no-nonsense way: climate-controlled storage for art, labs for art conservation, staff offices, and a library with a two-story reading room. Thanks to grade changes between the front and back of the building, vehicles can deliver artwork at either of the museum's two main levels.

As designed by Maltzan and Newman, MoMA QNS is more than just a temporary home for a growing museum. With its dynamic interior landscape and streetwise exterior, it is remapping culture in New York and perhaps even changing the character of the institution it serves. ■

Sources

EIFS: *Dryvit (Ultralation System II)*
Curtain wall and skylights: *Kawneer*
Modified bituminous roofing: *Georgia Pacific Building Products*
Steel windows: *Norshield*
Sliding entry doors: *Besam*
Plastic laminate: *Nevamar*
Exterior lighting: *Nulux (custom)*

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The 200-unit building occupies an entire block south of Market Street (opposite). Each two-story loft facing Folsom Street (left) has an open terrace and a space enclosed on one side by floor-to-ceiling channel glass.

Stanley **Saitowitz** tests the market for high Modernism with his **YERBA BUENA LOFTS** in San Francisco's South of Market district



By Clifford A. Pearson

Developers of multifamily housing in America tend to play it safe in terms of design. With large sums of money at stake and often difficult approval processes to endure, they don't want to challenge anyone's taste in architecture. When the market is strong, anything will sell; so why waste money on high design? When the market is soft, nobody wants to try selling anything that's not warm and fuzzy.

Erdal O. Tansev is not your ordinary developer. An engineer by training, he had worked for Chevron, building oil fields, and then developed electrical power plants. "I know how to get things built," he explains. Big things. In recent years, he has been developing residential projects in San Francisco—mostly wood-frame buildings, nothing very big. So when the chance to acquire an entire block south of Market Street presented itself in 1996, he took it. With the dot-com boom in full-swing and young computer geeks looking to spend large sums of money on cool places to live, the project appeared to be a good bet.



While walking around the South of Market area, Tansev had noticed some small live-work buildings designed by Stanley Saitowitz and liked their straightforward expression of structure and function. Such a direct approach appealed to the engineer in Tansev. The developer in him, though, realized that selecting a Modernist such as Saitowitz for a big speculative project required "a leap of faith." Tansev leaped and didn't look back.

Saitowitz had started thinking about lofts with his design of 1022 Natoma Street, a live-work building completed in 1990, where his office occupies the top two floors. "In all of my work, the assembly *is* the object, the structure *is* the building," explains Saitowitz. For example, he refers to the 25-foot-wide structure on Natoma Street with exposed metal floor trusses and horizontal strip windows as "a loft scaffold," an apt description. "I've always been interested in systems," he explains, "and how many variations you can get with them."

Born in South Africa, Saitowitz was steeped in the Modernist tradition at the University of the Witwatersrand in Johannesburg before establishing his practice in San Francisco in the early 1990s. "I started out in South Africa with an architecture rooted in the landscape and only recently have my buildings become more urban," he says. In terms of size and number of dwelling units, the Yerba Buena Lofts is Saitowitz's most urban building so far. And in terms of construction and materials, it is his most muscularly modern.

Saitowitz envisioned the building as a giant concrete "egg crate" with a repetitive grid of double-height dwelling units. Within each 16-foot-high, 16-foot-wide bay, he would set panels of floor-to-ceiling translucent glass and a balcony or terrace. The poured-in-place-concrete frame would remain exposed, serving as finished surface, both indoors and out.

No building project in San Francisco moves quickly through the approvals process, especially if it doesn't pretend to look like a Victorian row house. The Yerba Buena Lofts was no exception. "It didn't have a tile roof or bay windows, so some people didn't like it,"

Project: *Yerba Buena Lofts, San Francisco, California*
Designer: *Stanley Saitowitz Office/Natoma Architects—Stanley Saitowitz, design principal; John Winder, Michael Luke, project architects; Naomi De Graaf, Daishi Yoshimoto, Eric Staten, job captains; Werner Bohr, Thomas Brune, Leigh Cristy, Carl Edman, Nadine Frommer, Oliver Hoffman, Neil Kaye, Vivian Klein, Johannes Kramer, Tamy Levin, Ulysses Lim, Verena Lindemeyer, Jacopo Mascheroni, Christine Mann, David Mathias, Oliver Steinle, project staff*
Structural engineer: *Watry Design Group*
Acoustical consultant: *Charles M. Salter Associates*
General contractor: *Pankow Residential Builders*



Without imitating old styles, the building's main facade makes abstracted reference to traditional bay windows and establishes an arcade at street level (left). The main entry (opposite, top) offers an elegant composition in concrete and glass.

recalls the designer. "But we showed them how the scale of the project and the repetitive bays fit with the fabric of the city without actually imitating old buildings." The city eventually agreed but required Saitowitz to make some changes in his design—such as adding recesses in two places to relieve the long, main facade on Folsom Street and setting the building back 10 feet in the rear along Shipley Street. In the spirit of making lemonade when dealt a lemon, Saitowitz and Tansev used the unusually deep setback on Shipley to create private gardens for the ground-floor apartments on that side of the building.

While the building offers units ranging in size from 900 to 1,450 square feet, all of them are two-story lofts. "I live in a high-ceilinged place, so I like high-ceiling spaces," states Tansev. And because he was targeting young professionals and dot-commers, most of whom hadn't started families, he figured these people would also appreciate a sense of volume in their residences. "Instead of highly programmed square footage, you get space, freedom," says Saitowitz. "Lofts allow more individual interpretations in terms of lifestyle."

Lofts, though, also added height to the project, which could have been a problem in a part of town where most buildings are restricted to 55 feet. So Tansev took advantage of a city program that let him build up to 85 feet high if he set aside 10 percent of the units as affordable housing. (The affordable units are priced at 60 percent of market value.) Saitowitz's design reduces the appearance of size, though, by articulating the concrete frame and the double-height spaces within it. Because the mezzanine in each loft is not expressed on the outside, the building reads from the street as being five stories high rather than 10.

The 200-car parking structure is another part of the building that is not immediately apparent from the street. By tucking the four-level garage in the middle of the site and wrapping the perimeter with resi-

SAITOWITZ CREATED LIVELY STREETSCAPES BY ALTERNATING THE RHYTHM OF OPEN AND ENCLOSED SPACES.

dences, Saitowitz not only hid the structure but provided same-level parking spots for lofts on the lower four floors, an amenity much appreciated by Californians. "Everybody wants to park right outside their living room," quipped Saitowitz.

Because the structure is neither painted nor clad, the concrete frame needed to be beautiful. Inspired by Modernist precedents such as Le Corbusier's Unité d'Habitation in Marseilles (completed in 1952) and Alison and Peter Smithson's Robin Hood Gardens in London (completed in 1972), Saitowitz designed a framing system with no columns. Instead, he used what he calls "wallumns," load-bearing walls between units that extend 7 feet inside the lofts. This device proves to be an elegant way of bringing the building's structural expression inside the dwelling units themselves. Although this exposed concrete frame is certainly more expensive than a typical building's structure, it eliminated the expense of bringing in several different tradespeople, such as carpenters, plasterers, and painters, to finish the walls.

Much of the building's impact comes from its snazzy combination of concrete with greenish channel glass and panels of clear glass. The channel glass, which has interlocking U-shaped sections, is fairly common in Europe but is just starting to be used here in the United States. While architects often blame their clients for cutting corners with materials, Saitowitz says, "Ed was determined to get the materials right. He deserves a lot of credit."

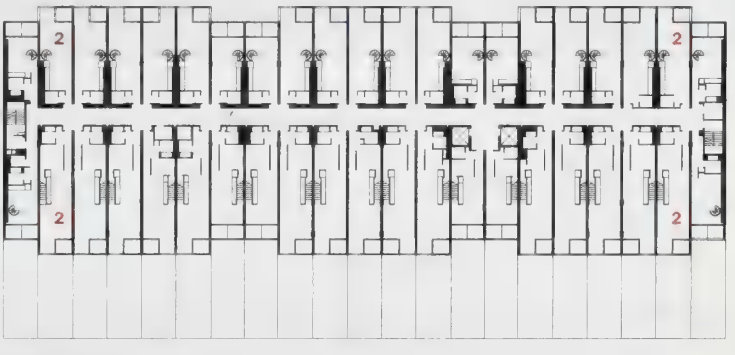
Saitowitz created lively streetscapes by alternating the rhythm of open and enclosed spaces in front of each dwelling unit—an architectural



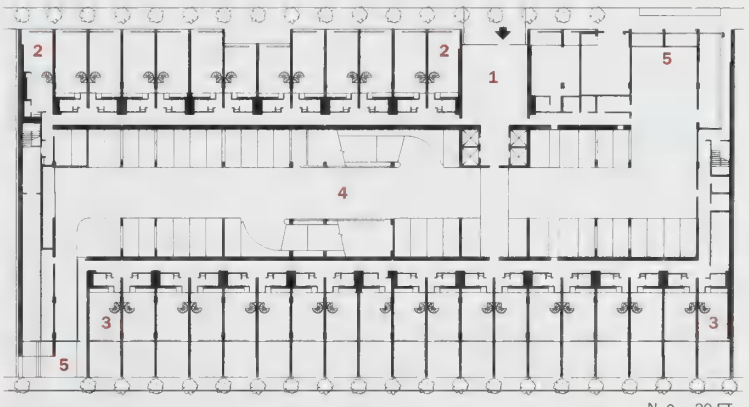


NORTH-SOUTH SECTION

1. *Lobby*
2. *Loft*
3. *Garden loft*
4. *Parking*
5. *Parking entry*



SEVENTH FLOOR

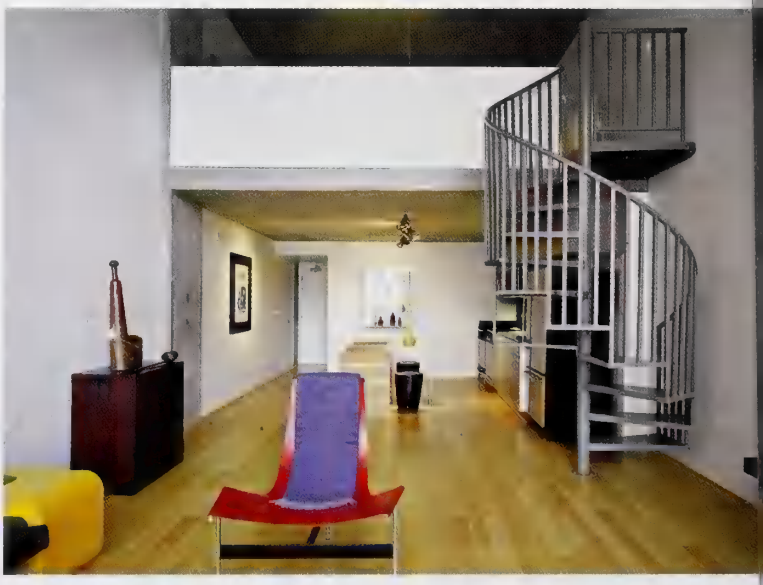


GROUND FLOOR

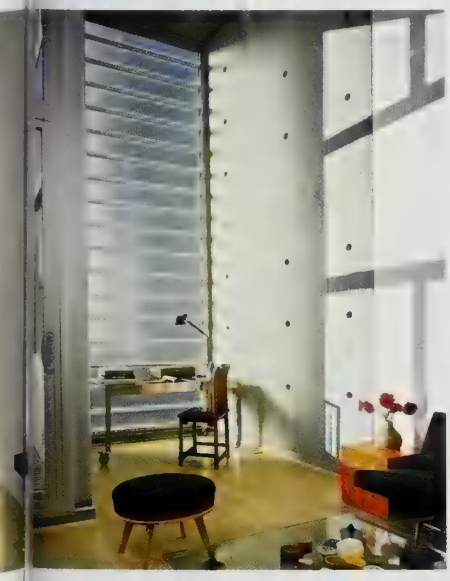
N 0 20 FT. 6 M.

The south facade (above) steps back above 40 feet to let more light reach narrow Shipley Street. The building is set back 10 feet on Shipley, so garden units were added (above right). The Folsom facade catches the sun (opposite) and glows at night.









The posttensioned concrete structure employs what Saitowitz calls "wallumns" (left), 7-foot-deep walls that act as columns. The lofts come in five basic plans, all with finished kitchens, mezzanines, and spiral stairs (opposite, bottom two).

binary code that expresses itself differently as the light changes during the day. Because the lofts are simple open spaces and both the clear and channel glass rise from floor to ceiling, the interiors feel big for their size.

Completed at the end of last year, the Yerba Buena Lofts hit the market after the dot-com bubble burst and the country was shaken by the attacks of 9/11. But Tansev had sold 70 percent of the units by the end of June and had increased prices from $350,000 to $450,000 for the small units and from $600,000 to $650,000 for the large ones. He expects to sell out by September or October. Despite the high quality of the poured-in-place concrete and the glass, the project incurred hard costs of $45 million, or $237 per square foot of habitable space—quite reasonable for San Francisco. What the project proves is there's a market for good design and a way to make a profit building it. ■

Sources

Cast-glass wall system: *Pilkington (Profilit)*
Aluminum sliding windows: *Traco*
Aluminum window wall system: *US Aluminum*
Glass wall in lobby: *Tempglass Western*
Glass lobby door: *Blumcraft*
Custom woodwork in units: *Sitraco Industries*
Fluorescent lights in units: *Lithonia Lighting*
Exterior lighting at entries: *Kenall Sentinall*

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The Berkshire



PHOTOGRAPHY: © ROBERT POLIDORI (OPPOSITE, AND THIS PAGE, BOTTOM); MICHAEL MORAN (THIS PAGE, TOP)

Heroically conceived and intricately detailed, Raimund **Abraham's** **AUSTRIAN CULTURAL FORUM** has a brooding, needlelike form

By James S. Russell, AIA

Out of the machine metaphors of 20th-century Modernism, Abraham evokes menacing images of pillboxes and guard towers in the Forum's 52nd Street elevation (left). Most prominent is the open-drawer suite for the director (opposite) and the inverted wedge near the top that opens to an outdoor terrace. The zipperlike north elevation encloses the scissoring exit stairs (bottom left).

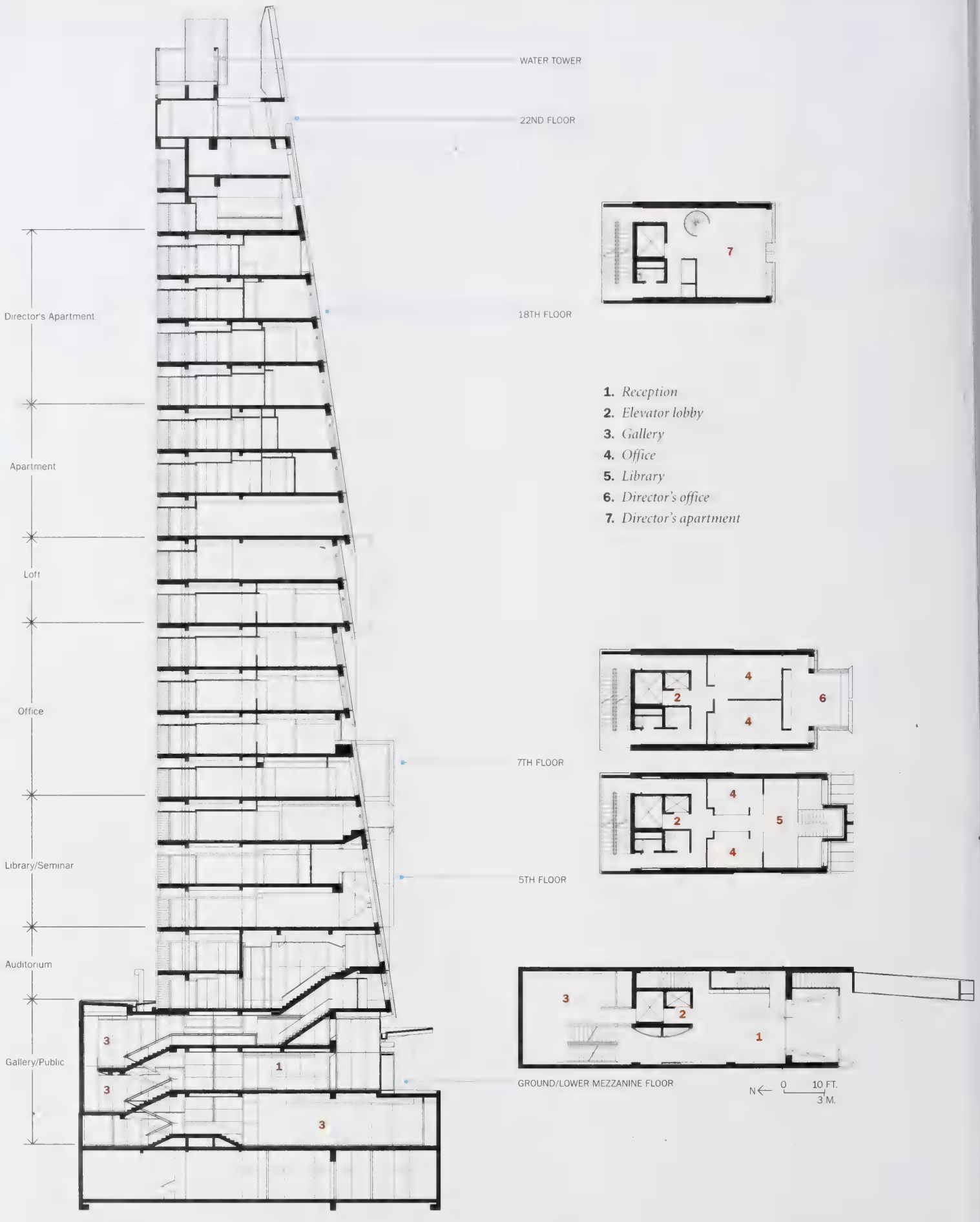
Twenty-four stories is not very high in Midtown Manhattan terms, but even the most preoccupied walker on East 52nd Street would be unlikely to miss the Austrian Cultural Forum, though it is dwarfed by far larger, bulkier neighbors. What first grabs attention is a five-story-high, sphinxlike form that juts toward the street. It projects out of suspended layers of sloping glass, which overlap each other sharp as knife edges. This needlelike tower, a mere 25 feet wide, draws the eye to its solid top, which is carved with mysterious, totemic slots. Most remarkably, the architect, Raimund Abraham, has stretched a mere 30,000 square feet over a dizzying 280-foot height.

In every respect the Austrian Cultural Forum seems to have been defined in out-of-the-ordinary terms. It is probably the most expensive building, per square foot, erected by a foreign government in America, although it is not intended to project government power or even to spur new direct investment. "The Forum's purpose is to make the dynamics of contemporary Austrian culture better known," says Christoph Thun-Hoehenstein, the Forum's director, "including the marvelous and very interesting things happening in the contemporary art world in various disciplines, such as visual arts, architecture, and music." Thun-Hoehenstein is programming the Forum's galleries, auditorium, seminar rooms, and library to cross-fertilize arts talent in Austria, America, and internationally.

"Here is a truly exceptional client," comments Kenneth Frampton, a Columbia University architecture professor who served on the competition jury that selected Abraham's scheme. "It was audacious to the point of craziness to put this pencil-point skyscraper on a 25-foot-wide town-house site. But the Austrians decided that the centrality of the placement in Manhattan was worth it. And they pushed it through."

In the Austrian-born, 69-year-old Abraham, the Ministry of

Project: *Austrian Cultural Forum, New York City*
Owner: *Republic of Austria, Federal Ministry of Foreign Affairs*
Architect: *Atelier Raimund Abraham—Raimund Abraham, principal; Simone Giostra, Peter Leeb, John Veikos, Jeff Brown, Anders Abraham, Chris Barlieb, Jennifer Whitburn, Catherine Seavitt, Frank Thinius, Mike Derker, Maya Ballen*
Consultants: *Arup (structural, mechanical, electrical, fire protection engineering); RA Heintges Architects (curtain wall)*
Developer: *Hanscomb*
Construction manager: *Barney Skanska Construction*



BUILDING SECTION



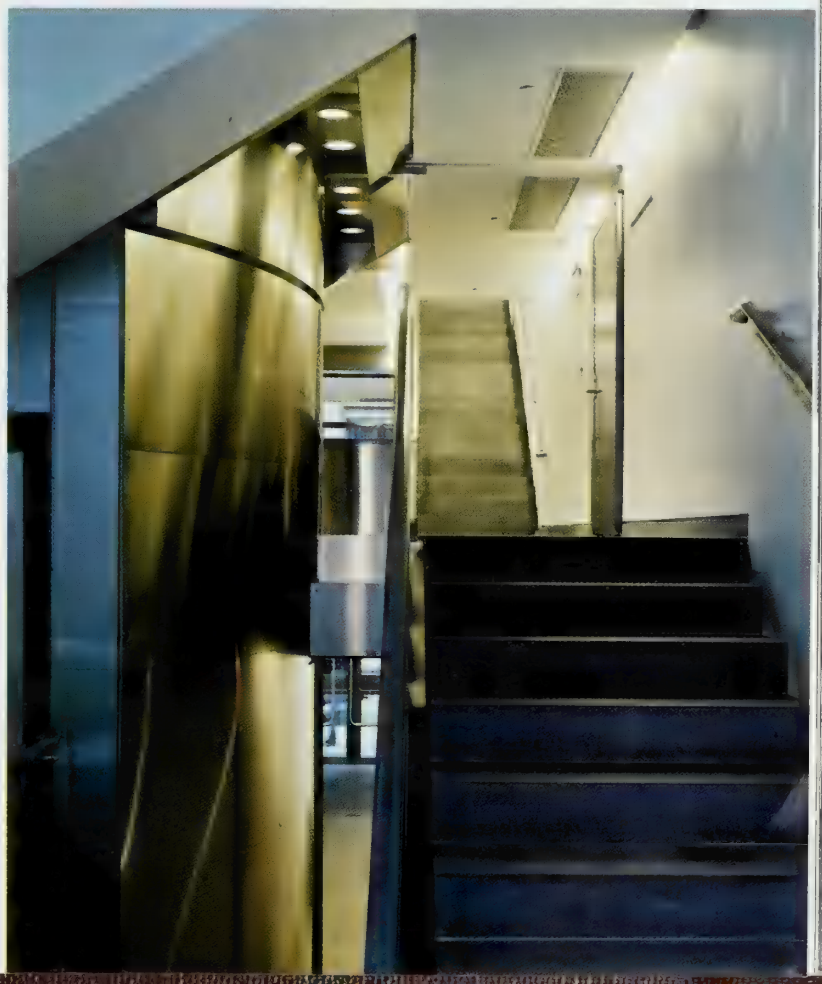
Light from a rear skylight beckons the visitor from the lobby back to a stair leading to gallery spaces one-half level up and down (right). From the gallery level, another stair rises past the stainless-steel-wrapped elevator core (bottom right) to the Forum's culminating public space, it's diminutive auditorium. Abraham articulated the south facade to denote the progression of public to private.

Foreign Affairs found an architect whose determination matched its ambition. Indeed, so impatient is Abraham with the compromises inherent in construction that he has completed only a handful of buildings in a career spanning almost 40 years. He has lived in America since 1964, but his substantial international reputation is based on teaching (at the Cooper Union, from which he has just retired, as well as numerous other schools) and on theoretical drawings and models of extraordinary power (see "The last iconoclast," following pages).

His approach to the Forum design was not theoretical, but, he says, "objective." Abraham worked out the amount of space needed and stacked it volumetrically. He found it almost perfectly filled the zoning envelope, which slims as it goes up along a sloping plane so that sunlight may reach the street. The crucial decision, says Frampton, which almost alone caused the jury to select the scheme over 225 competitors, was to give up the daylight from the north elevation in order to place two fire stairs that scissor over and under each other. Most of the other schemes ran the exits along one of the party walls, but the arrangement so reduced the building width that the resulting floors were "very difficult," explained Frampton. "The problem with the site was its width, not its depth."

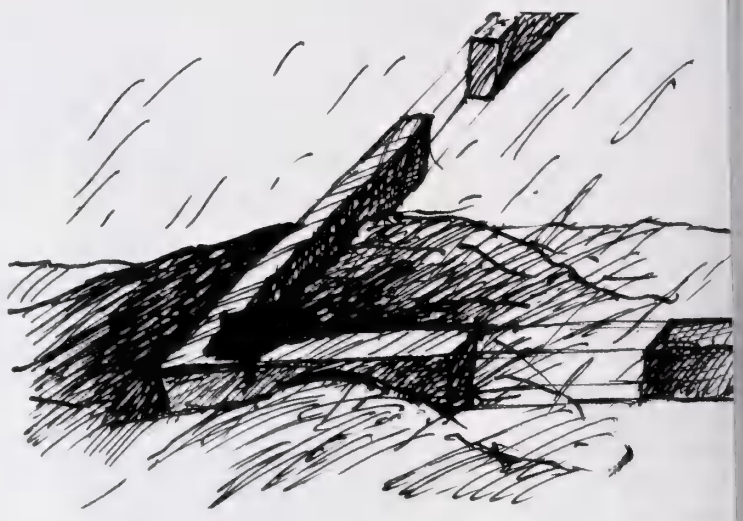
Creating usable, if small floor plates freed Abraham to deploy daylight more theatrically. A large skylight lures the visitor out of the lobby, past the stainless-steel elevator enclosure and up a short stair to a mezzanine gallery space (photos this page). Throughout, double-height spaces and the modeling of the south elevation throw surprising stripes of light and unexpected shadows into the building.

While the stone, metal, and glass vocabulary of the exterior carries into the public spaces on the lower levels, a more domestic scale emerges above, the higher the floor and the more private the program.





LOCUS 26 63° N / 100° W



LOCUS 23 48° N / 100° W



LOCUS 2 49° S / 75° W



LOCUS 17 15° S / 50° W

The last iconoclast

"If architecture doesn't take risks, it remains just design," said Raimund Abraham in a recent interview. He makes it clear that "just design" isn't good enough, and that architecture that is without risk, challenge, and conflict is not worth doing. The exploratory drawings, sketches, and models he has long made evoke the Austrian Cultural Forum's armored exterior imagery. "Raimund has always maintained that one doesn't have to build to be an architect, that the drawing and the idea are as important as the built work," says Kenneth Frampton.

Abraham describes a dialectic of materiality and ideal geometry. It is as if every line drawn on paper were pregnant with meaning, a tactic deployed in a never-ending battle between the intrinsic nature of substances—their material weaknesses and strengths—and the purity of primary form. "It's a whole process of anticipation—anticipating that a line becomes an edge, that a plane becomes a wall," says Abraham. "The texture of the graphite becomes the texture of the built." He seems to operate in a mode of perpetual embattlement where rules are always questioned and molds must be broken. Asked why the Forum was not more inviting in appearance, he responded, "You have to overcome barriers to really appreciate something." His design commands you to pay attention to it and try to decipher it.

Abraham's sensibilities were profoundly formed by the Tyrolean environment in which he grew up, where "farmhouses were stone fortresses" that appeared to have grown out of the mountainous terrain. He skied and climbed mountains, becoming intimately aware of the geology. ("You had to know if that rock would hold when you put your weight on it.") World War II brought bombs and skies filled with airplanes, which evoked in Abraham both horror and fascination with the aesthetic power of such massive machine-borne destruction. "All of this," he says, "is in the Forum building."

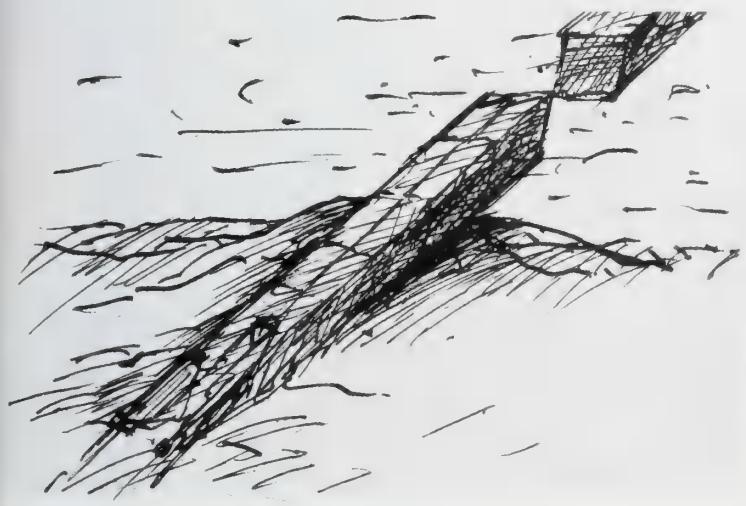
Students are attracted to Abraham's fierce integrity. He does not go easy on them, but, as one former student commented, he makes you want to go where he leads. Colleagues say he picks fights, holds grudges, and can't work well with others, but they also describe a kind of closet idealist who can rarely see the silver lining



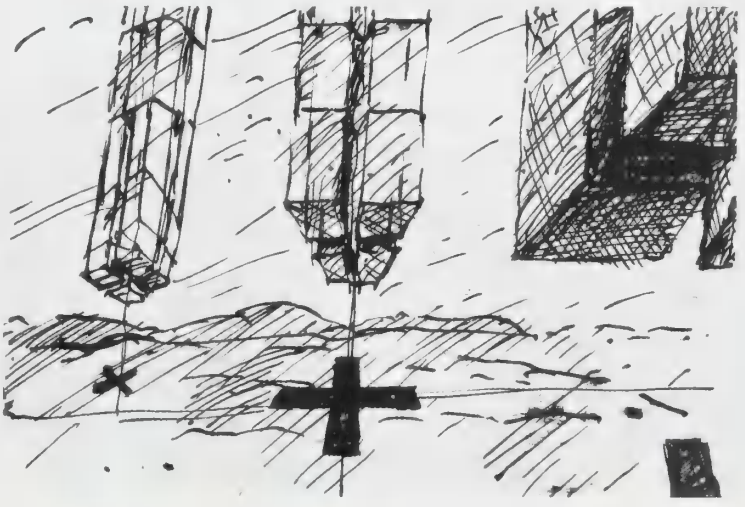
LOCUS 22 33° N / 86° E



LOCUS 21 10° S / 75° W



LOCUS 8 23° S / 140° E



LOCUS 19 41° N / 75° W

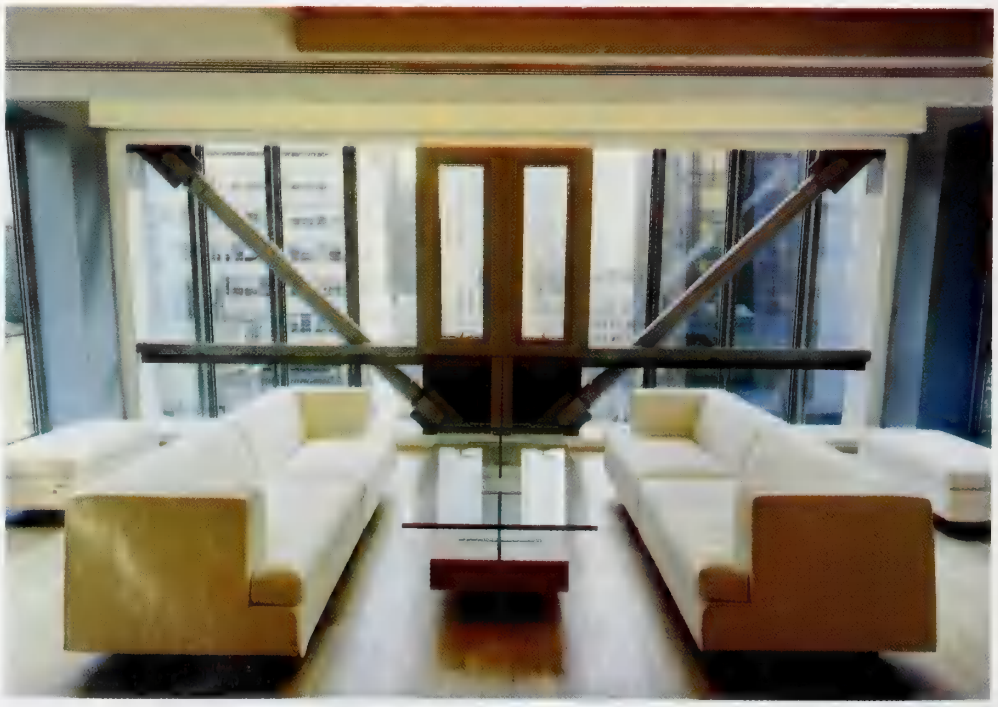
amid the dark clouds and yet can't stop struggling to achieve his dream.

Building the Forum certainly tested Abraham's tenacity. After he won the design competition, in 1992, the project languished, as controversy erupted over its cost. (It ended up coming in at almost $1,000 per square foot.) Although both the Austrian foreign minister and the culture minister supported the project unstintingly, Abraham found himself arguing for the project on the floor of parliament. Finally, construction was approved and began in 1998. Abraham fought with the contractor and subcontractors. New York's corruption-ridden concrete firms couldn't meet the specs, it is said. The curtain wall had to be fabricated in Austria because American makers couldn't achieve the quality Abraham demanded, it is said. Abraham refused to give a building tour to a prominent Austrian official because he disagreed with the political direction of the country, it is said. Neither these nor numerous similar stories can be verified because of pending legal actions or fear of Abraham's temper. Abraham does note, "I lost 10 years fighting for the building."

"Raimund has enormous pride," says Frampton. "He's quite courageous and self-possessed and anarchic in a way. He's a bit Don Quixotic because too many things become issues." Out of this has come a building that Frampton describes as "heroic in conception, in a way that's been absent in Manhattan over the past 40 years. The Forum is more akin to American building of the turn of the 20th century." *James S. Russell*







The auditorium (opposite, right) has been designed to classical-recital standards. A pier above it projects out of the facade, enclosing a stair in the library (opposite, left), which refracts sun from the director's office over it (above). Abraham designed some of the furniture in the director's apartment (left).

The change is most obvious in the warm, tiny, wood-paneled auditorium, which seats only about 75. Abraham compares the four-level director's apartment at the top to a brownstone house, but this aerie—flooded with light from its sloped glass—offers from its lofty perch a far different experience than its earthbound brethren.

Abraham allowed the slope to trigger the evocative elevation strategy. The slits and overhangs in the facade denote where the program changes as the building rises (from public spaces, to offices, to the apartments at the top; see building section, page 124). As if defiant, the projecting rectangle of the eighth-floor director's office breaks through the facade's glassy membrane. The brooding totemic imagery in the projecting elements, the punched openings, and the central vertical slit give the facade its masklike, almost menacing quality. It's not obviously inviting, and about that Abraham is unapologetic: "It protects what is intimate within," he says.

This metaphorical armament seems to be as much about Abraham as it is about architecture or the aspirations of the Forum. Resistance is a way of life for Abraham, according to colleagues, and it spills into his architectural approach. Materiality is his chosen medium because he envisions truth being derived from the very fabric of architecture. The diagonal braces behind the glass facade take the place of conventional lateral supports, which usually lie invisible behind opaque spandrels. Here their pistonlike quality expresses resistance to a metaphorical as well as literal compression emanating from the comparatively large bulk of the buildings on either side.

No decision went unconsidered. "In the kind of skin I envisioned, glass was not about transparency but about weight," he explains. "I wanted to suspend glass and layer it. You perceive its platelike qualities and the knifelike edge." Inside, glass-and-metal office partitions, detailed using little I-beam shapes, elegantly display the door's pivot hinge. Mechanical services are rigorously organized and encapsulated in painted metal chases. "Considering that he presents himself as the ultimate bohemian type—the artist, the provocateur, the poet—there are two aspects of Raimund that astonish," says Frampton, "the impeccable working drawings and his capacity to work out every nut and bolt and carry it out to the nth degree."

But Abraham's design mystifies those who have grown to appreciate the sensual and the spectacular that characterizes so much contemporary work. Instead of rigor, they see an arid obsessiveness that harkens back to a dusty golden era of heroic Modernism.

Unexpected sensations unfold out of the Forum's apparent severity, however. The sloped glass and the modeling of the front facade, with side-facing windows here and there, dramatically frames views of sidewalk life below and spectacular shaftlike vistas down Midtown's street canyons. The visitor sees an entirely different cityscape from that offered by the standard, frontal, street-wall building. In its small floors, the Forum paid a price for going so dramatically vertical. But each level offers a different experience of the city outside the full-height windows. Lower floors look toward the neo-Gothic rose window of St. Patrick's Cathedral, serendipitously visible through a jumble of water towers. Upper floors open to city panoramas.

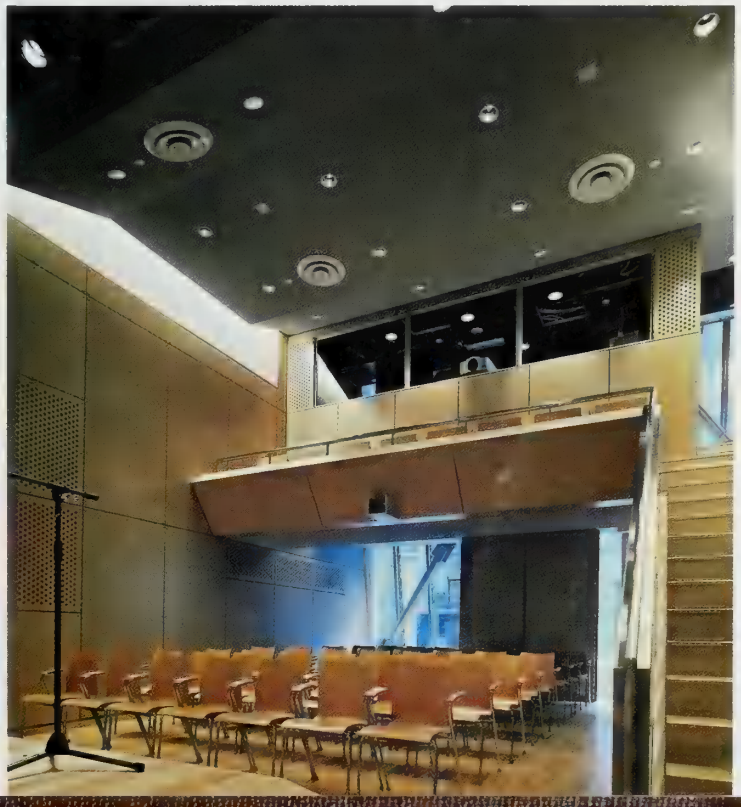
Abraham has never hidden his disdain of architecture-as-usual—calling architects who work with developers "lackeys," for example. And it has been easy to dismiss him as one who did not want to get his hands dirty with the inevitable compromises that clients and contractors entail. But the variety of experience and evocation Abraham packs into his sliver tower makes a powerful case for his passion, for his vision, and for his adept defense of the integrity of the work against compromise-minded politicians and builders. "After the process of construction is completed," he told Kenneth Frampton in 1999, "there is no place for excuses or blame. That is the truth of built architecture." ■

Sources

Curtain wall: *GIG Fassadenbau*
Wall panels, skylights, windows: *GIG/MDE*
Metal stairs, handrails: *Skyline*
Ornamental metal: *Airflex*
Glass doors and frames: *Blumcraft*
Cushioned hardwood floor: *VAL Floors*
Wood paneling: *Byrne Millwork*
Stone flooring: *GM Crocetti*
Custom millwork: *List*
Lighting: *Zumtobel*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.







Like the cab of a truck pulling a rig, a sculptural form—here, shaped like a beehive—fronts the larger and simpler rectilinear volume of an office low-rise. Escherlike stairs comprising an abstract amphitheater crown the hive's roof and encircle a pyramidal skylight (this page and opposite).

In Culver City, California, Eric Owen **Moss** builds the **BEEHIVE**—a playfully sculptural structure and a creative workplace abuzz with activity

By Dana Hutt



In the book *The Beehive Metaphor* (2000), the Spanish scholar Juan Antonio Ramírez draws attention to an obscure thread running through modern architecture: The symbolism of honey-yielding insects, their social communities, and the shape of their hives. "Architects and artists have [long] imitated the appearance and structure of traditional beehives, or the honeycomb, with its hexagonal sockets," he writes, proceeding to analyze the influence of the beehive and the apiary as social models and formal inspiration for architects as varied as Gaudí, Mies van der Rohe, and Le Corbusier. Eric Owen Moss revisits this metaphor with his latest project, a Culver City, California, office and conference space intended for tenants in creative lines of work. Although the architect squarely rejects any deep reading of the structure's nickname, this building—as a place of meeting and work—does relate to a beehive's historic associations with productivity, sociability, organization, and transformation.

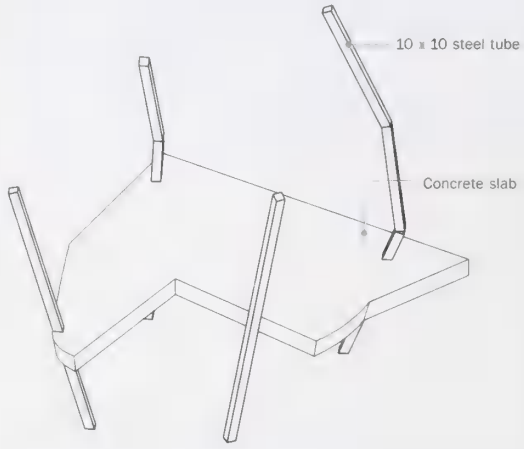
The completion of the Beehive coincides with a significant moment in Moss's career. In early 2002, the architect won the design competition to expand the Queens Museum of Art, in New York City, was appointed director of the Southern California Institute of Architecture, and embarked on a bold redesign (as yet unbuilt) of St. Peterburg's revered Mariinsky Theater in Russia. Moss is poised to begin the largest projects outside the Culver City "laboratory" of highly personal, singular works he has produced for his longtime patrons, the developers Frederick and Laurie Samitaur Smith. But what does the Beehive reveal about the direction of this architect's future designs?

Ironically, the new building shows the durability of a long-standing idea in Moss's work. Eight years from its initial design to its completion, the Beehive predates several of the architect's recently completed projects but appears little changed from its early models, published in 1996. A 10,000-square-foot office space/conference room inserted into a slot in an existing fabric of warehouse buildings along National Boulevard, it offers a curvilinear antithesis to the adjacent Box (1990–94), an office building with a rectilinear, but equally sculptural, conference component.

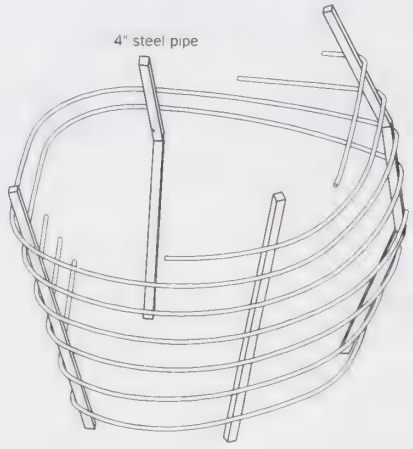
The Beehive is part of Moss's ongoing investigation of kinetics, structural transformation, and contradiction—what he terms the "balanced imbalance." Its organizational strategy echoes many of his earlier Culver City projects, including the Box; 3520 Hayden Ave. (1993–94), an office building; and the Umbrella (1995–2000), an office space with a

Dana Hutt is the director of Architectural Documentation and Special Projects at Art Center College of Design, Pasadena, Cal.

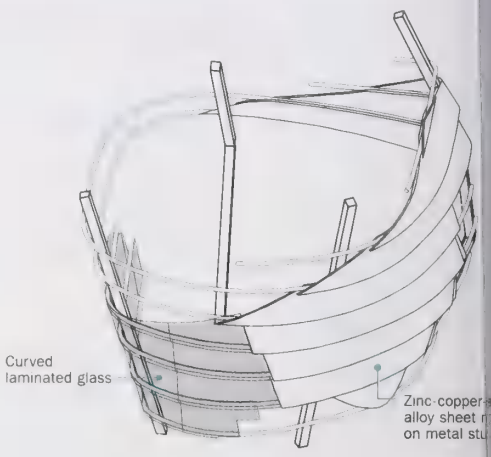
Project: *Beehive, Culver City, Calif.*
Architect: *Eric Owen Moss Architects—Eric Owen Moss, FAIA, principal; Paul Groh, project architect; John Bencher, Scott Nakao, Eugene Slobodyanyukm Dan Puengprechawat, Augis Gedgaudas, Chris Weikcheit, Emil Mertzel, project team*
Contractors: *Samitaur Constructs (general contractor)—Peter Brown, field operations director, and Tim Brown, general superintendent; Cal State Steel; California Bending Glass; Crowner Sheet Metal*
Engineers: *Kurily Szymarski Tchirkow (structural)*
Consultants: *Nikolas Weinstein Studios (glass)*



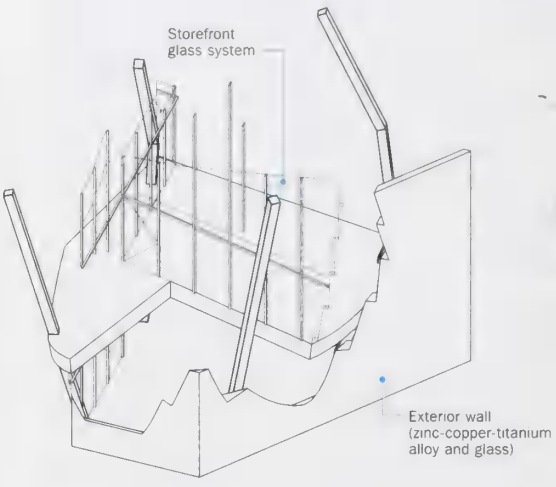
BENT COLUMNS/FLOOR



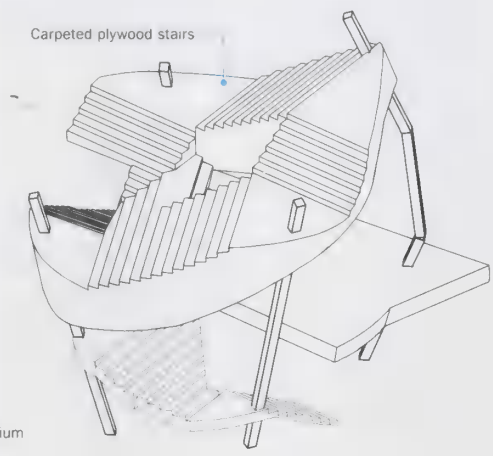
COLUMNS/PIPES



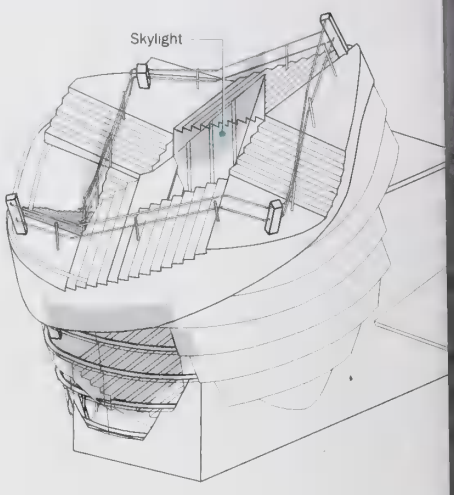
PIPES/SKIN



STOREFRONT/WALLS



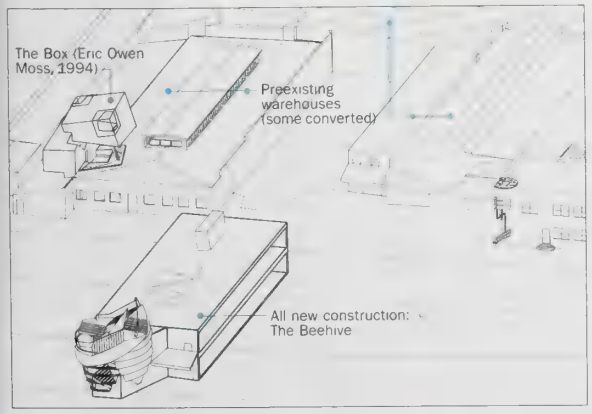
STAIRS/FLOOR



BEEHIVE

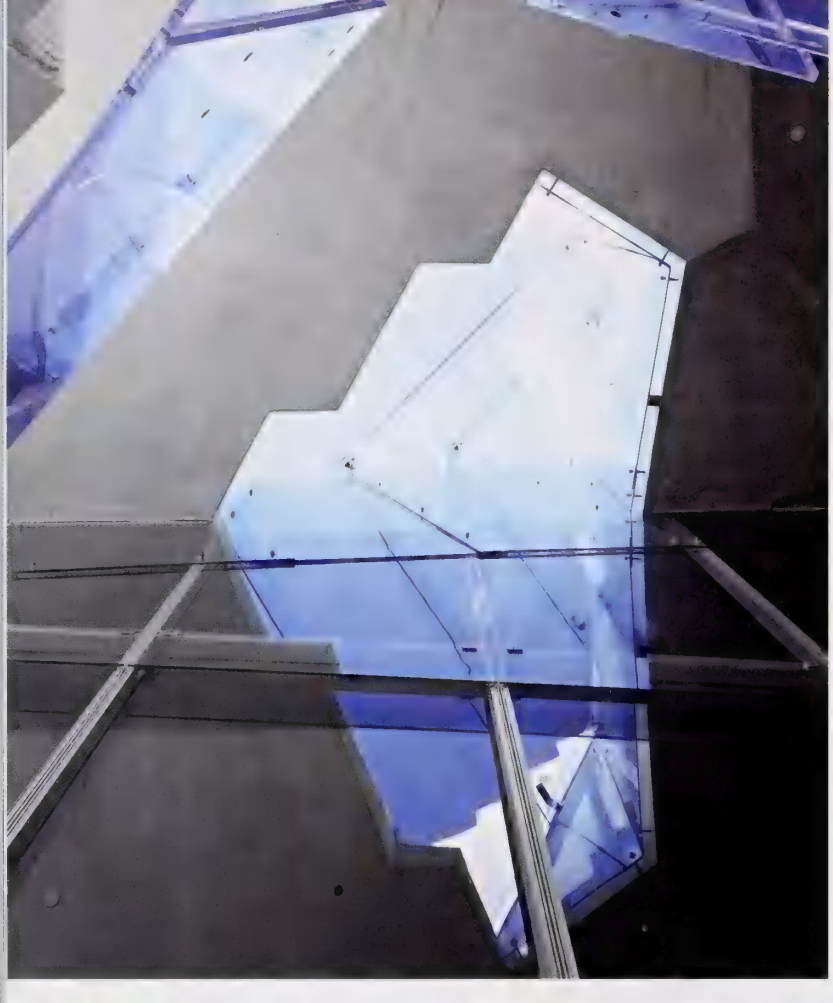
As in the analytical drawings (above), the hive component was actually constructed (right) with a structural armature, incorporating dynamically varied hoops of steel pipe around four eccentric columns that lean and bend. Partially glazed and partially clad in curved panels of zinc-copper-titanium alloy, the resulting form (opposite, top) resembles a boldly transmuted miniature of Frank Lloyd Wright's Guggenheim Museum. The grassy landscaping is as sculptural and playful as the structure itself. In Culver City, under the patronage of clients Frederick and Laurie Samitaur Smith, architect Eric Owen Moss has built a virtual empire of his own idiosyncratic designs (opposite, bottom right)—with additional ambitious projects yet unrealized. The Beehive—its "cab" and "rig"—is all new construction, inserted among preexisting warehouses, some of which Moss has already converted or transformed (opposite, bottom left).





1. *Warner Theater*
2. *Offices*
3. *The Stealth*
4. *Trivida*
5. *The Beehive*
6. *The Box*
7. *Slash/Backslash*
8. *The Umbrella*
9. *Bridge*
10. *Samitaur I—Kodak offices*
11. *Air Rights City*







glass-"draped" deck for musical performances. In each case, an attention-grabbing sculptural "anomaly," as Moss puts it, fronts "normative" office space. Like a truck pulling a heavy rig, the Beehive's plan delineates clearly between the irregularly shaped "cab," or anomaly, and the rig, a two-story orthogonal office block, with its second floor longitudinally perforated to bring light from three skylights to the ground floor. The hive, or cab, houses an entry and reception area with a stair leading to a glassed-in conference room. A second stair ascends to the rooftop, which is crowned by a slanted Escherlike assemblage of staircases—a compressed abstraction of an amphitheater, encircling a pyramidal skylight. In contrast to most of the architect's previous Culver City projects, the sculptural component here works more as an individual building with its own structure than as an intervention into a larger building. The result is the strongest integration of image and function in Moss's work to date.

According to Moss, the Beehive's shape was not the generating idea but emerged from a larger architectural objective: to explore "a mechanism for building a building," regardless of form. Four sculptural steel columns, or "legs," rooted at the edges of a previous building's footprint, constitute the vertical structure. These columns lean and bend with apparent eccentricity to configure interior space and respond to programmatic requirements. Concentric horizontal rings of steel pipe, at 4-foot intervals, wrap the group of columns, further defining the Beehive's distinctive form. Like a dented miniature of Frank Lloyd Wright's Guggenheim Museum, the building's vertical profile steps out with each interval. Orthogonal exterior walls of smooth-troweled plaster, rising from the base, partially cover and partially reveal the basketlike steel armature. A taut and fluid exterior surface—clad in curved panels of Rheinzink, a zinc-copper-titanium alloy, to the west and curved laminated glass to the north—achieves a high level of resolution in its complex geometries.

How to characterize this kind of structure? "It starts from what appears to be a clear strategic order of poles and hoops, but then the designer goes about breaking the poles, not at the floor, but above, so the poles feel the strain," says structural engineer Guy Nordenson, who did not consult on the Beehive but is currently working with Moss on the Queens Museum expansion. He points out that the most painful moment for the structure is where it reveals the broken joint: "On one hand, the structure is under some visible strain because of the dislocation—you can see the stress and the hardest working part of the knee and, in fact, part of it is stripped away. But, on the other hand, it adds another layer of meaning to the project." Here, the manipulation of structure clearly complements Moss's ongoing interest in dislocation and imbalance: expressing and pushing the limits of stress are essential to the design. But is the Beehive a structural tour de force? "In a different sense: You are taking a tour and you see the forces at work," Nordenson says. "Maybe it's the ultimate tour de force."

Another key step in Moss's ongoing investigation of motion, structural transformation, and dislocation, the Beehive demonstrates a substantial refinement in construction and presumably lays the groundwork for his ambitious projects in New York and Russia. ■

Sources

Sheet metal: *Rheinzink (zinc-copper-titanium alloy)*
Roofing: *Excel (Crete deck coating)*
Doors: *Turi Installation (birch)*
Hardware: *Schlage (locksets); Hager (hinges)*
Paint: *Dunn Edwards (plaster)*
Lighting: *Stonco and Lumière (custom-modified fixtures)*
Cabinetry: *AM Cabinet*
Furniture: *Hinerfield/Ward (cold-rolled steel reception desk and conference table)*

www For more information on the people and products involved in this project, go to Projects at **architecturalrecord.com**.



Spiraling upward, irregularly shaped stairs reconcile the hive's curved shell with the pyramidal form of its central skylight (this page and opposite, top). Opaque cladding is stripped away in areas, revealing the layering of materials (this page and opposite, bottom).



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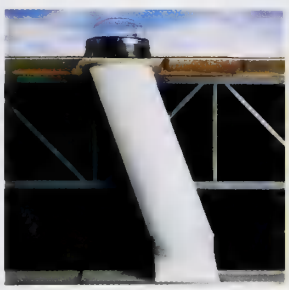
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COLLEGES AND UNIVERSITIES

Modernist Propriety

MODERNIST ARCHITECTURE HAS OFTEN FAILED MISERABLY IN PROPORTION, SCALE, DETAIL, AND MATERIAL. HOWEVER, AS THESE BUILDINGS DEMONSTRATE, EXCEPTIONS ABOUND.

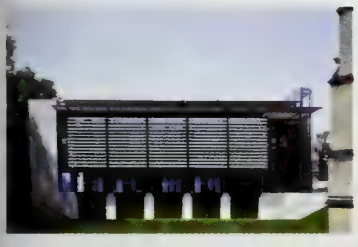
By Suzanne Stephens

Most of us have lists of "teardowns"—big, bad buildings that mar the coherence and character of historic college campuses. At Kenyon College, in Ohio, the administration decided its 1960s banal brick boxes mixed badly with the mostly Collegiate Gothic architecture, some of which dates to 1824. Kenyon's president, Robert A. Oden, Jr., decided to do something about it: Kenyon has already torn down one major building, while several others are reportedly headed for the dumpster.

Kenyon's point is well taken. Too many such mediocrities clutter campuses. So, why does ARCHITECTURAL RECORD publish only Modern buildings in its analysis of architecture of American colleges and universities, many of which are known for their neo-Gothic or neo-Colonial architecture? The buildings selected for publication on the following pages show that Modern buildings can indeed fit in with traditional campuses and not ruin the gestalt of the original. Interestingly, the new buildings, designed by Tod Williams Billie Tsien Architects, Hardy Holzman Pfeiffer Associates, Kohn Pedersen Fox, or Nicholas Grimshaw, reveal a traditional kind of sensitivity. Through the use of materials with certain textures and tones, and through adherence to time-honored principles of proportion, linearity, rhythm, and scale, a Modernist vocabulary can add and enrich the campus's architectural quality.

Not all Modernist buildings, of course, make such obeisance to texture, line, and detail. Bland brick boxes are proliferating, just as in the 1960s—only, as is the current fashion, with metal ziggies springing out of their tops. But let's not ignore the fact that a lot of neotraditional buildings are just as problematic. They may lack the metal ziggies, but often they are brick boxes with neotrad paste-ons. They frequently lack proportion and scale; especially, for example, when large laboratories are wedged into the procrustean bed of a traditional vocabulary.

There is a strong reality to be confronted: Most campuses (and their architects) take the easy way out and settle for mediocrity—historicist or Modern. As Oden explained recently in *The New York Times* (July 6, 2002), the Modernist boxes stem from the American "desire to go with whatever works, whatever is immediately at hand." Furthermore, he noted, "the American self … ignores what buildings and spaces can do for your own work and your own creativity." For its part, RECORD believes tradition and innovation can coexist comfortably and even provocatively. Handled with sensitivity, Modern architecture, as exemplified by the following projects, can indeed address that issue successfully. ■



1.

Oxford, England

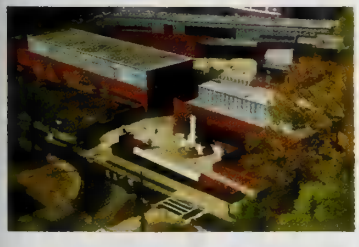
Kohn Pedersen Fox Associates (International) use linearity, rhythm, and proportion to help a research center fit in with its neighbors.



2.

Dunedin, New Zealand

A library expansion and renovation by Hardy Holzman Pfeiffer Associates brings a sense of scale to a gateway structure at the University of Otago.



3.

Baltimore, Maryland

Johns Hopkins University's new Mattin Center illustrates Tod Williams and Billie Tsien Architects' sensitivity to materials and site.



4.

Creve Coeur, Missouri

Nicholas Grimshaw and Partners and HOK astutely combine material and scale in the Donald Danforth Plant Science Center.

www For additional college and university projects, and more information on the people and products involved in the following projects, go to Building Types Study at **architecturalrecord.com**.

Rothermere American Institute
Oxford, England

1 **KOHN PEDERSEN FOX'S MODERN STEEL-AND-GLASS STRUCTURE DEFERS TO ITS NEO-GOTHIC NEIGHBOR THROUGH LINEARITY, SCALE, AND RHYTHM.**

By Suzanne Stephens

Architect: *Kohn Pedersen Fox Associates (International)—David Leventhal, partner in charge; Fred Pilbrow, design partner; Jim Dunster, project architect; Jon Neville-Jones, project manager; Geoff Cartwright, Ben Elsdon, Melissa Doughty, Simon Hall, Clare Mason, Neil Merryweather, Rick Milliship, Masahiro Nakatani, Graham Newell, Ross Page, Dean Weeden, Paul Yuen, project team*
Client: *Oxford University Surveyors Office*
Consultants: *Dewhurst MacFarlane & Partners (structural); Buro Happold (mechanical and electrical); Jessop and Cook Architects (planning supervisor); Arup Acoustics (acoustical); Davis Langdon & Everest (quantity surveyor)*

Size: *26,900 square feet*
Cost: *$7.3 million*
Completion date: *2001*

Sources
Stone cladding: *Bath Stone Group*
Curtain wall: *Metal Casements*
Glass brise-soleil: *Levolux*
Concrete: *Thames Formwork*
Metal roofing: *Metalex*
Furniture: *Steelcase*

www For more information about the people and products involved in this project, go to Building Types Study at architecturalrecord.com.

With its origins dating back at least to the 12th century, it is small wonder that Oxford University provided an apt model for the Collegiate Gothic architectural style that swept through American universities in the late 19th and early 20th centuries. Yet recently, even Oxford has encountered the problem American campuses often face of fitting modern buildings into a traditional fabric. Rothermere American Institute shows that it is possible to use an entirely Modernist vocabulary and still suitably defer to historic architecture. Ironically, it took parvenu Americans—the London office of Kohn Pedersen Fox (KPF)—to demonstrate how it should be done.



Program

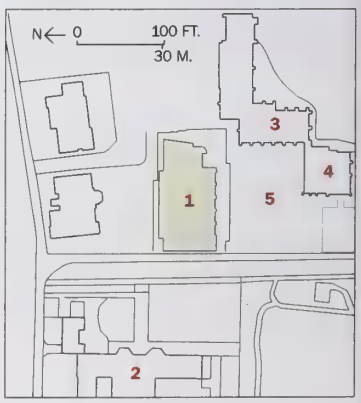
The Rothermere American Institute was created as a center for research, teaching, and discussion about American history, politics, and government. Accordingly, the 26,900-square-foot structure, budgeted at $7.3 million, was conceived to provide a reading room with access to book stacks and carrels, as well as a variety of seminar and discussion rooms.

Solution

David Leventhal of the London office of KPF placed the rectangular structure catercorner to Mansfield College, the youngest and smallest of Oxford's 39 colleges. The handsome neo-Gothic buildings, designed in 1887–89 by Basil Champneys, are distinguished by their buttery-tinted Bath-stone walls.

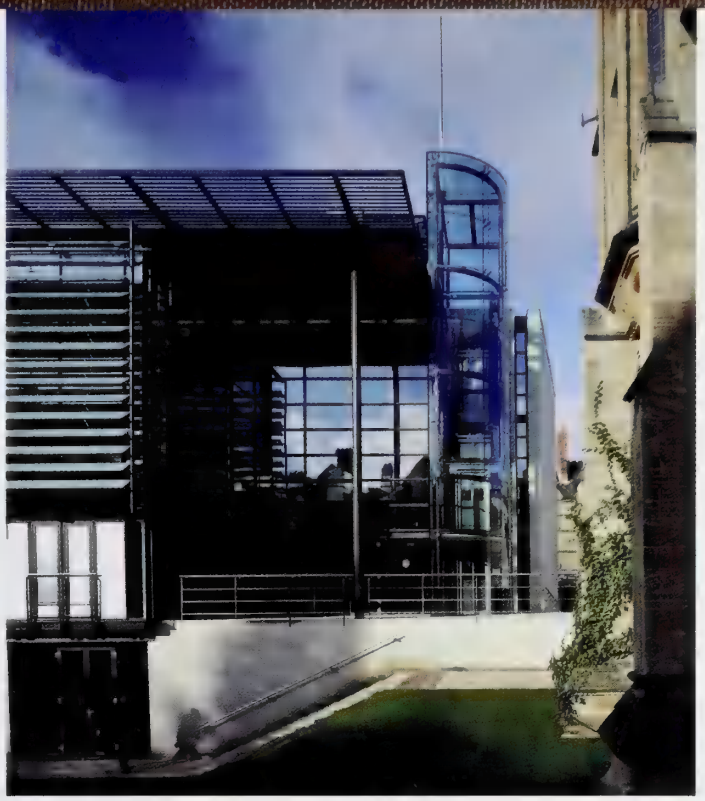
By having the Rothermere center form the north side of a sunken green quadrangle, the architects were able to create a private precinct, with Mansfield College wrapping around the east and south. The siting allowed Rothermere's reading room, the dominant volume in the building, to look onto the smooth, grassy lawn.

The center is sunk 11 feet below grade, so that its lowest level, which contains seminar rooms, opens out to a terrace edging the lawn, which is depressed 9 feet. By this means, the architects were able to get natural light into all four

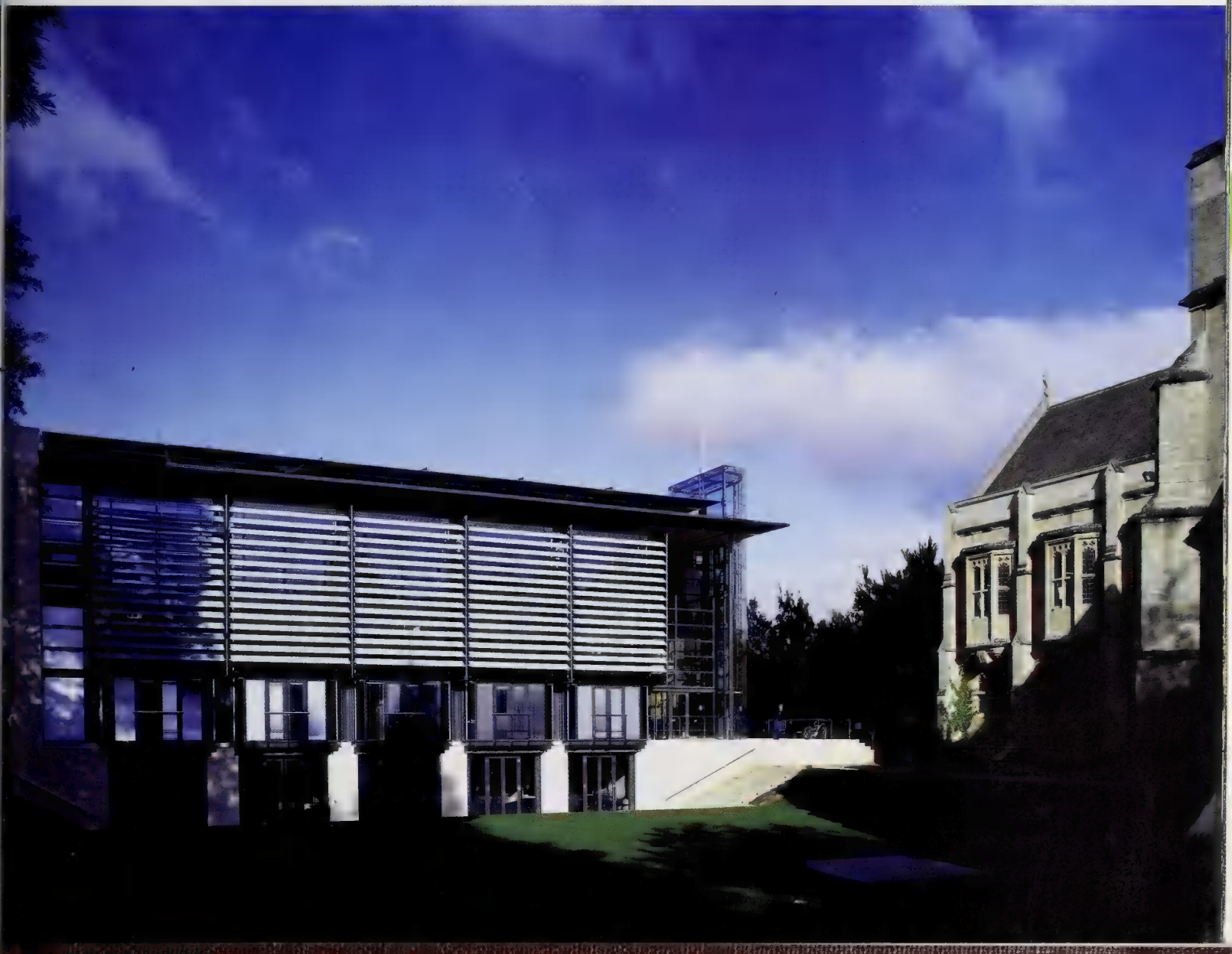


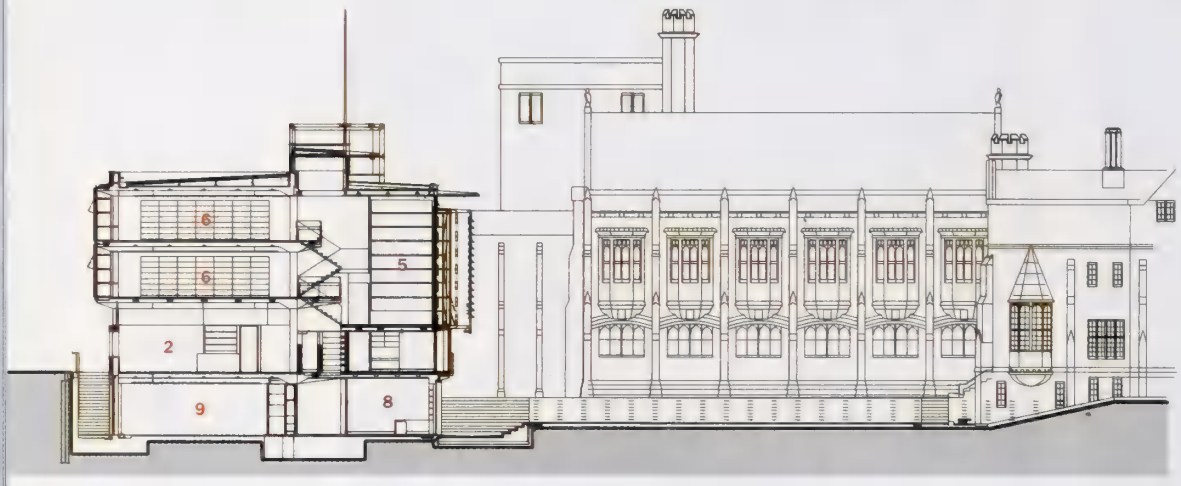
1. *Rothermere American Institute*
2. *Rhodes House*
3. *Mansfield College library*
4. *Principal's lodge*
5. *Quad*



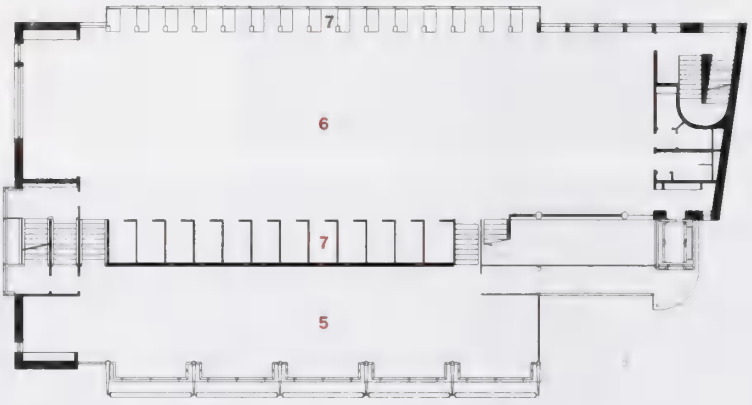


Rothermere is a hybrid poured-in-place-concrete and steel-frame structure, which, like the adjacent neo-Gothic Mansfield College (opposite and below), has an ashlar course of Bath limestone cladding its lower portion, where piers divide seminar rooms opening onto a sunken terrace.

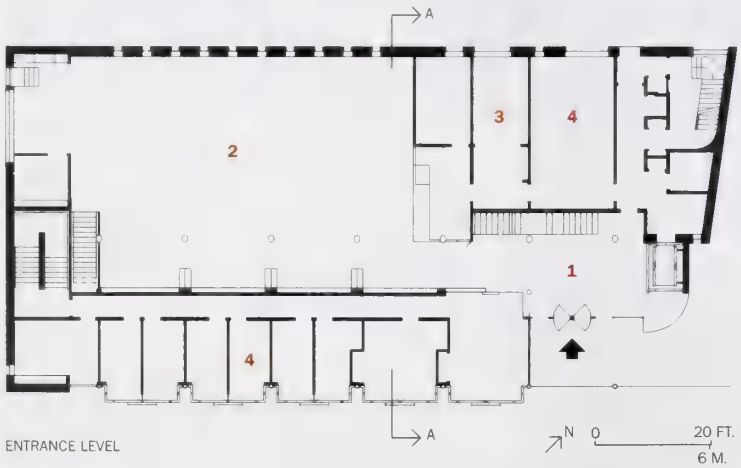




SECTION A-A



TYPICAL FLOOR



ENTRANCE LEVEL

The two mezzanine levels overlook the reading room (opposite, right top and bottom), where study carrels are enclosed with translucent glass partitions and wood slats to retain a sense of openness. The glazed corner entrance (opposite, top left) opens into a three-story-high entrance lobby. Barrel-vaulted concrete ceilings above the stacks cantilever as coves over the desks along the north wall (opposite, bottom left).

1. *Entrance*
2. *Library catalog*
3. *Head librarian's office*
4. *Offices*
5. *Reading room*
6. *Stacks*
7. *Carrels*
8. *Garden-level studies*
9. *Seminar room*

stories of the building, including the 23-foot-high reading room, while maintaining the eave line of the adjacent Mansfield structures.

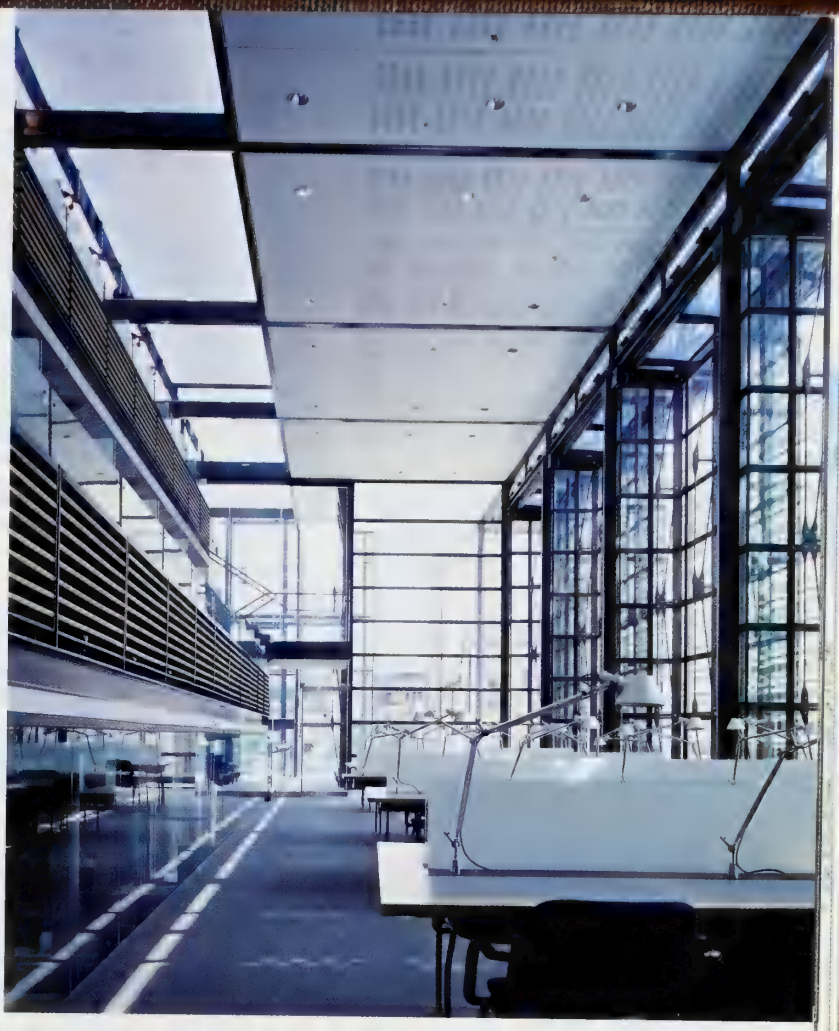
Since the major facade's glass wall faces south, KPF was well aware that heat and glare could be a problem—even in a cool, cloudy climate. The garden elevation features fritted glass louvers over a glass-and-steel curtain wall. Backing up the double layers of glazing are vertical cable-truss wind posts on cantilevered steel floor trays. Behind this greenhouselike assembly the reinforced concrete slab and piers carry the reading stacks, marked by barrel-vaulted concrete ceilings that cantilever over the reading desks on the north side.

For passive cooling, hot air rises through a monitor in the middle of the building and a clerestory along the top of the curtain wall. At night, all the north and south windows open automatically to draw air inside, cooling off the exposed concrete frame and the books. Since the thermal mass keeps room temperatures down during the day, only the garden-level seminar rooms and the rare-book storage need to be air-conditioned.

Commentary

On any given day, the building's interior is luminous and extremely comfortable. But, according to the head librarian, John Pinfold, some students have found heat gain is still a problem on the warmest days. In addition, the low sun angle in the winter sometimes allows rays of light to enter between the louvers. These complaints aside, the library succeeds as a sensitive addition to a venerable campus. The elegant fritted louvers and the steel framing, plus a structural bay spacing of 14 feet, 9 inches, maintain the rhythms and the linearity of the Victorian Gothic structure next door (albeit with the emphasis on horizontal rather than vertical lines). Furthermore, the interior vertical thrust at the entry and the open reading levels recreate the spatial drama of older structures nearby. ■









Information Services Building, University of Otago
Dunedin, New Zealand

2

HARDY HOLZMAN PFEIFFER HAS DESIGNED A HIGHLY DRAMATIC GATEWAY FOR A NEW KIND OF LIBRARY ON AN OLD CAMPUS.

By Elizabeth Arcuri

Architect: *Hardy Holzman Pfeiffer Associates—Norman Pfeiffer, FAIA, partner; Stephen Johnson, AIA, principal architect*
Associate architect: *Opus International Consultancy—Jeff Thompson, project architect*
Client: *University of Otago*
Consultants: *Hadley & Robinson (structural engineers); Arup (mechanical, electrical, fire, facade engineers; lighting, acoustical consultants)*

Size: *200,000 square feet*
Cost: *$20 million*
Completion date: *2002*

Sources
Steel: *Naylor Love Structural Steel*
Masonry cladding: *Madden*
Glass curtain wall, metal panel: *Alutech/JVM*
Composite metal panel: *Alutech; Alpolic*
Oamaru stone: *Dooleys Masons*
Tile/shingles: *Little and McLeod*
Glass for glazing and skylights: *Pilkington (Viracon)*

WWW For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

A picturesque collection of stone-front Victorian buildings gives a strong identity to the core of the University of Otago, founded in 1868 on a peninsula of the South Island of New Zealand. Between 1960 and 1980, however, bland clusters of concrete structures along the southern part of the campus altered the gestalt. Now Hardy Holzman Pfeiffer's (HHPA) 200,000-square-foot Information Services Building (ISB) launches a third and more inspiring generation of development. Sited on a highly public corner at the southwest edge of the campus, the building proclaims its function as a gateway to the university and its symbolic role as a center for learning.

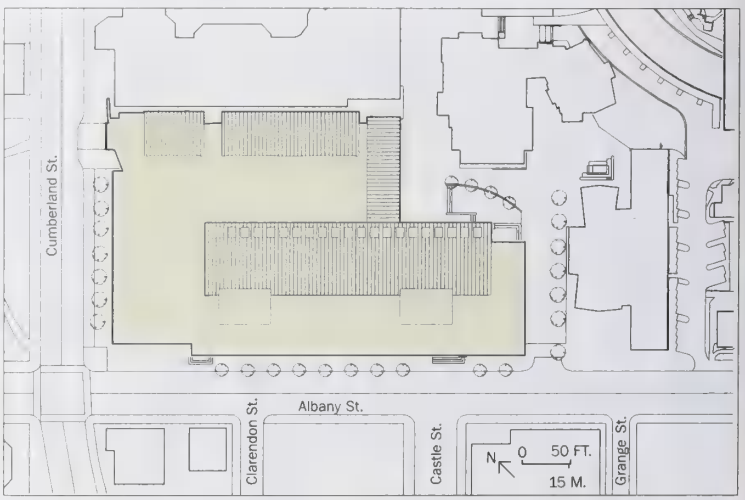
Program

In planning the building, the university staff visited a number of American libraries, including the Los Angeles Central Library, which had been renovated and expanded in 1993 by HHPA's Los Angeles office. The client group was particularly impressed by the way the library's atrium solved the problem of getting natural light into a large space. Soon HHPA's Los Angeles office, headed by partner Norman Pfeiffer, FAIA, with Stephen Johnson, AIA, the principal architect, was commissioned to develop Otago's 1996 master plan as well as design the ISB. The Los Angeles Library and ISB projects are drastically different in style. The former expansion defers heavily to the Moorish Deco style of the historic Bertram Goodhue building (1926); at ISB, HHPA felt the design should explore (and improve upon) the Modernist idiom of the adjoining university buildings with gridded glass and curved metal forms.

Elizabeth Arcuri is an educational programming consultant in New York City.

Solution

The $35 million ISB renovation and expansion called for demolishing about a third of the existing 1960s Central Library (soundly built but deficient in space and afflicted with outdated systems) and constructing the new library to extend beyond the original footprint. The base of the new construction is a

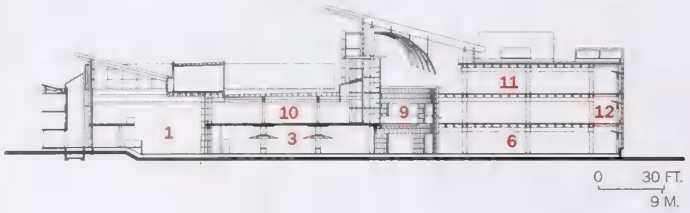






The ISB's major facade (below) faces Albany Street at the edge of the campus, while the west entry (opposite) is on Cumberland. Various arms of the renovation and expansion create an inner precinct (left).





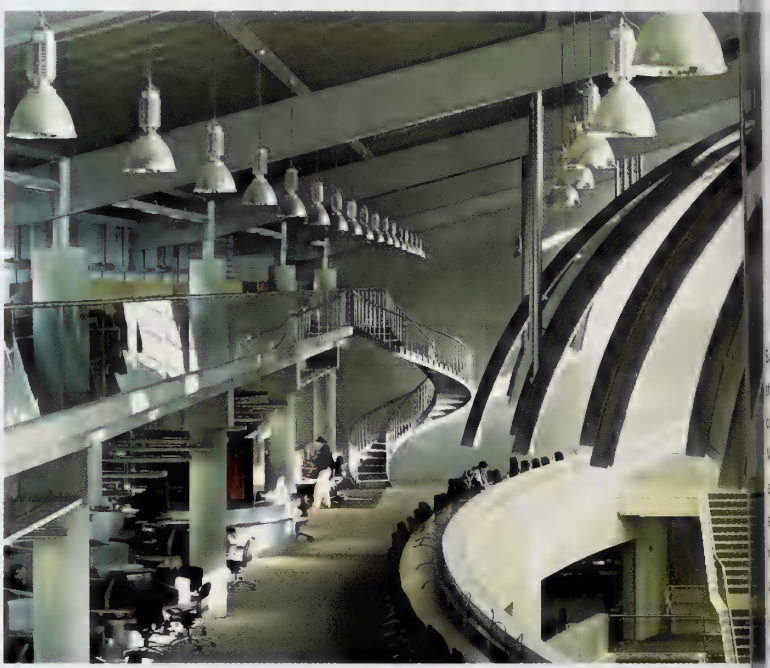


1. *Union link*
2. *Coffee shop*
3. *Wired carrels*
4. *Service desks*
5. *Reference*
6. *Staff offices*



GROUND FLOOR

N 0 30 FT. 9 M.



7. *Staff offices*
8. *Service*
9. *Atrium*
10. *Periodicals*
11. *General collection*
12. *Readers' seating*



poured-in-place concrete grid, while a double-T-slab construction is used above. The remaining two thirds of the 1960s library was drastically remodeled: The interior was gutted to accommodate the information (computer) commons, and the exterior glazed to match the curtain wall of the adjacent new counterpart. In addition, HHPA renovated the exterior of nearby buildings and created a glass-enclosed passage between the ISB and the existing student union.

The transparency of ISB's exterior is carried into the open-plan interior. The atrium at the heart of the center is given a strong shape by a curved Oamaru stone wall: At the plaza level, the wall separates the secure zone for the collections (over 400,000 books and 300,000 microformat volumes) from the 24-hour reading area and the information commons. Open stairways and well-spaced concrete columns augment the feeling of expansiveness, which in turn is underscored by the use of translucent materials of glass, perforated metal, and wire mesh.

Commentary

The ISB, Otago's most ambitious, significant capital undertaking, is considered "first of a new breed" by the university librarian Michael Wooliscroft. The glass-sheathed, three-story center has become a dramatic presence as a gateway to the campus, with strong visual connection to the surrounding city. ■



Sails suspended over the three-story atrium cut down on glare. More than 2,300 seats are provided in unusual and flexible arrangements. Opposite the atrium, study carrels are arranged in idiosyncratic "beehive" stacks (right), which were inspired by the rookery at Taiaroa Head, a bird and animal sanctuary near Dunedin.

Mattin Center
Johns Hopkins University
Baltimore, Maryland

3

TOD WILLIAMS BILLIE TSIEN ARCHITECTS DEMONSTRATES A PRINCIPLED APPROACH FOR FITTING MODERN FORMS INTO THE LANDSCAPE.

By Suzanne Stephens

Architect: *Tod Williams Billie Tsien Architects—Tod Williams, Billie Tsien, principals in charge; Betty Chen, William Vincent, project architects; Kyra Clarkson, Leslie Hanson, Andy Kim, Jennifer Turner, Paul Schulhof, Nina Hollein, Peter Arnold, project team*
Client: *Johns Hopkins University*
Consultants: *Severud Associates (structural); Ambrosino DePinto & Schmieder (mechanical, electrical, and plumbing); Whitney Bailey Cox Magnani (civil); Mahan Rykiel (landscape); Renfro Design Group (lighting); Acoustic Dimensions (acoustical); 2 x 4 (graphic)*
Size: *50,000 square feet*
Cost: *$13.6 million*
Completion date: *2001*

Sources
Structural steel: *Jarvis Steel*
Masonry: *Potomac Valley Brick & Supply Company*
Exterior wood-molded red brick: *Boral Brick Company*
Exterior custom-glazed brick: *Castaic Brick*
Chinese Northern Black granite: *Walker and Zanger*

WWW For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

With its design for a new creative arts center at Johns Hopkins, Tod Williams and Billie Tsien Architects confronted evidence of a strong case of Jeffersonitis, a condition affecting much southeast American campus architecture. The campus's two existing quadrangles, characterized by the type of neo-Georgian brick-and-white-trim architecture of Thomas Jefferson's University of Virginia, date back to 1914, when the first buildings of a master plan by Parker and Thomas, of Boston and Baltimore, were finished.

A third quad-in-the-making seems to be maintaining the loyalty to the vocabulary. In such a setting, a Modern building can look as if a UFO landed among the halls of ivy. Williams and Tsien, however, demonstrate that a Modernist approach can give a campus a new identity without destroying its character.

Program

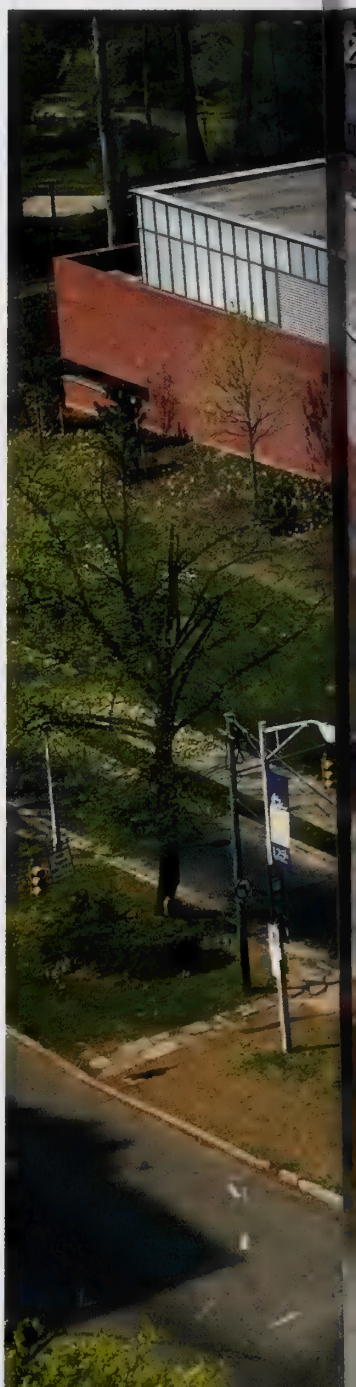
For most of its 126-year history, Johns Hopkins's reputation has been based on its science and literature programs. It has lacked a building devoted to the arts, and indeed does not have full-fledged art, music, and theater departments. Only in the past decade have students been able to take art electives for credit. And now, largely through private donations, a 50,000-square-foot facility has been put in place to add another dimension to student life.

Solution

The site for the arts center occupies 1.5 acres of a slope at the southeastern end of the campus, edged by a main thoroughfare on the east side, a power plant to the west, and a densely wooded sculpture garden that belongs to the Baltimore Museum of Art on the south.

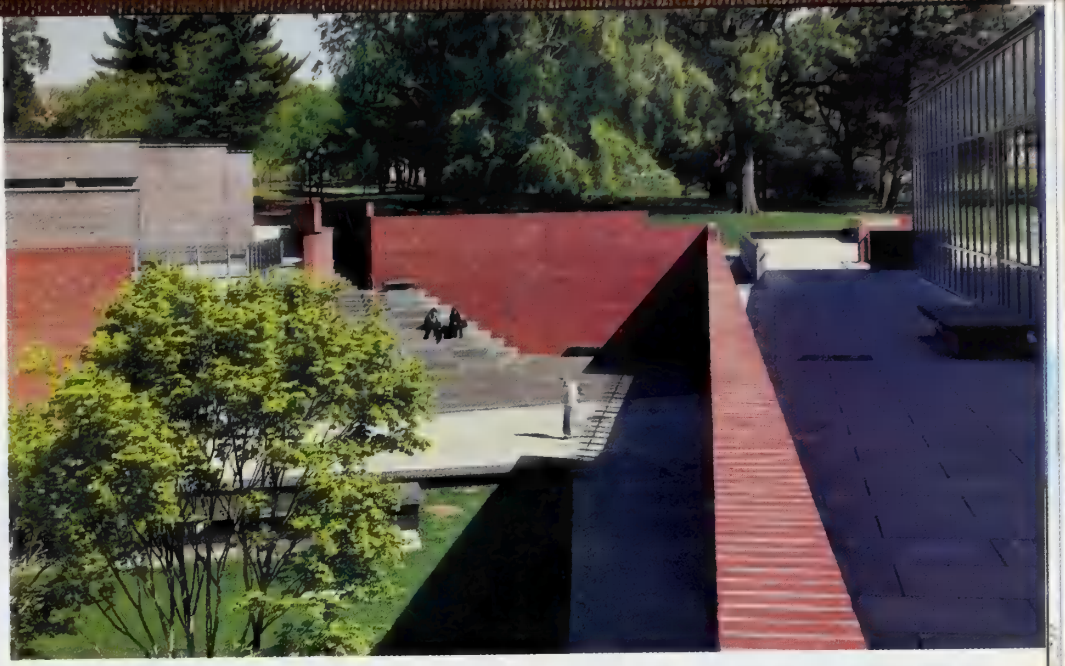
Tod Williams and Billie Tsien developed a scheme with three wings, in which two branches spill gradually down the slope as it drops 32 feet in grade. The third short wing, for a theater and café, in effect bridges the two on the upper side of the hill, creating an open piazza in the area enclosed by the angled arms. The brick buildings, with a series of stairs, ramps, decks, and interior passages that connect various painting and digital arts spaces as well as dance studios, act as exterior gateways, interior pathways, and meeting places for students coming to the center. "We wanted to create both a nexus for student interaction and a connector to various activities," Williams explains.

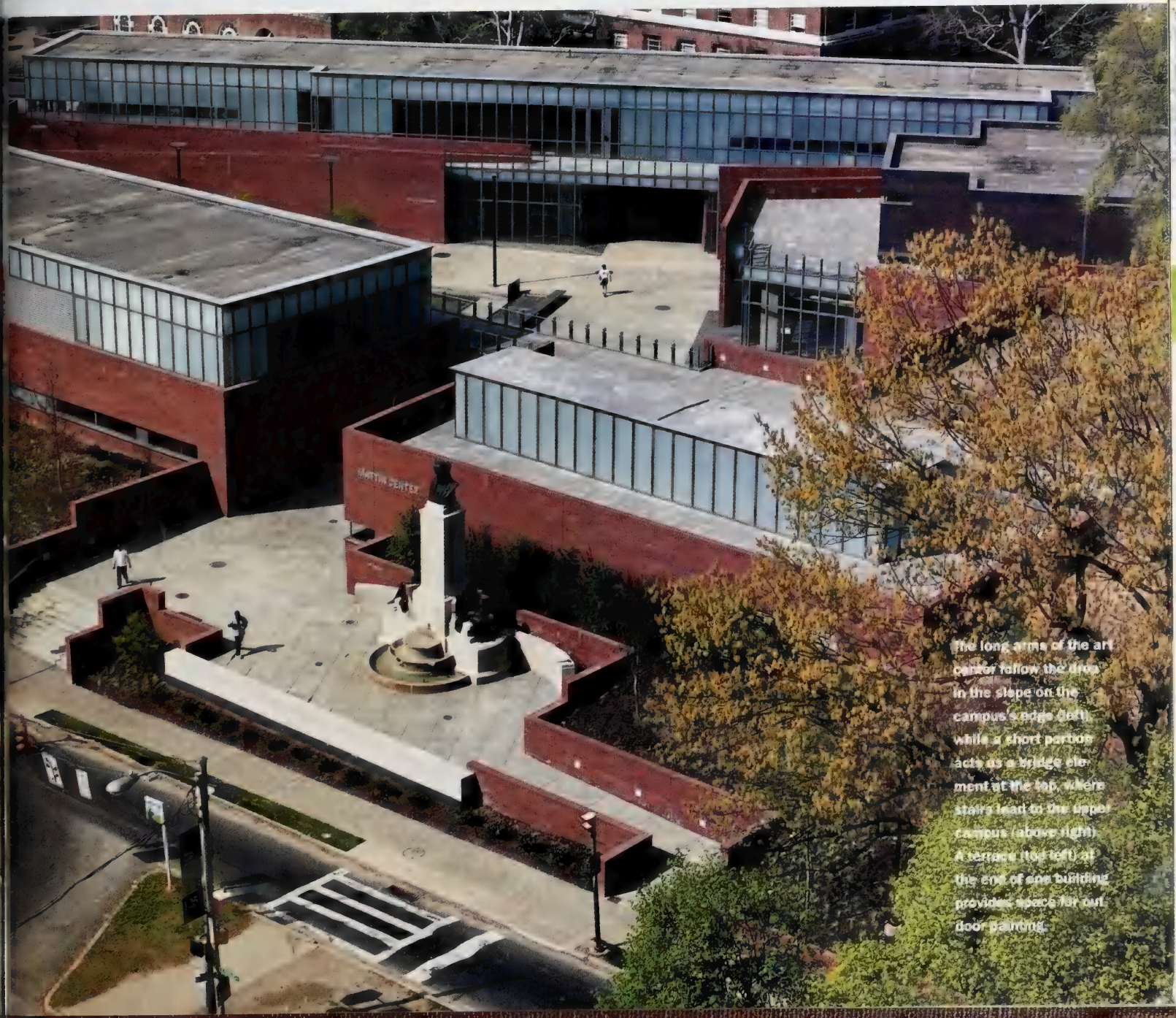
The poured-in-place-concrete structure and its retaining walls at the base of the buildings gradually give way to steel square-tube columns and beams and sandblasted, double-paned glass walls at the top. But the dominant brick material bears a strong resemblance to the kind Alvar Aalto employed in his Town Hall at Säynätsalo in 1952.



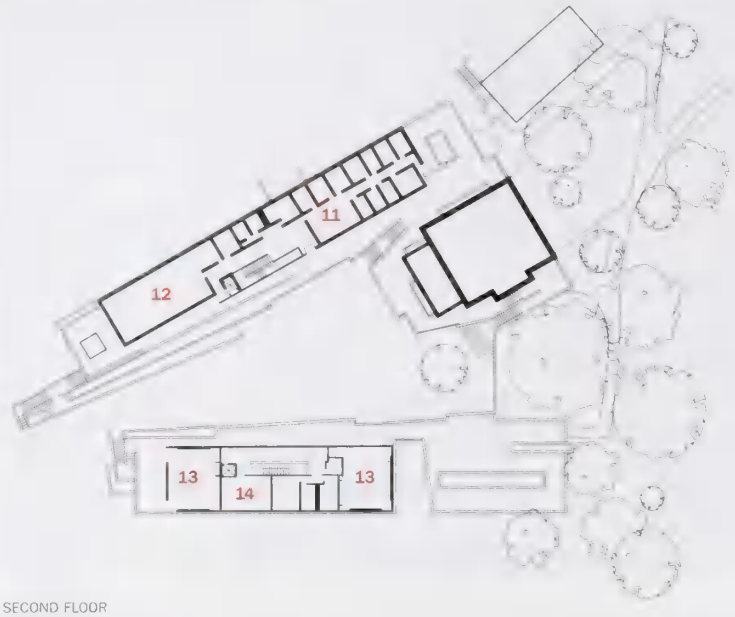
PHOTOGRAPHY: © MICHAEL MORAN







The long arms of the art center follow the drop in the slope on the campus's edge (left), while a short portion acts as a bridge element at the top, where stairs lead to the upper campus (above right). A terrace (top left) at the end of one building provides space for outdoor painting.



SECOND FLOOR



FIRST FLOOR

N 0 20 FT. 6 M.

1. *Black-box theater*
2. *Student offices*
3. *Music practice rooms*
4. *Small music rehearsal room*
5. *Large music rehearsal room*
6. *Dance*
7. *Meeting room*
8. *Maintenance*
9. *Back of house*
10. *Mechanical*
11. *Administrative*
12. *Film/digital arts*
13. *Art studio*
14. *Darkroom*

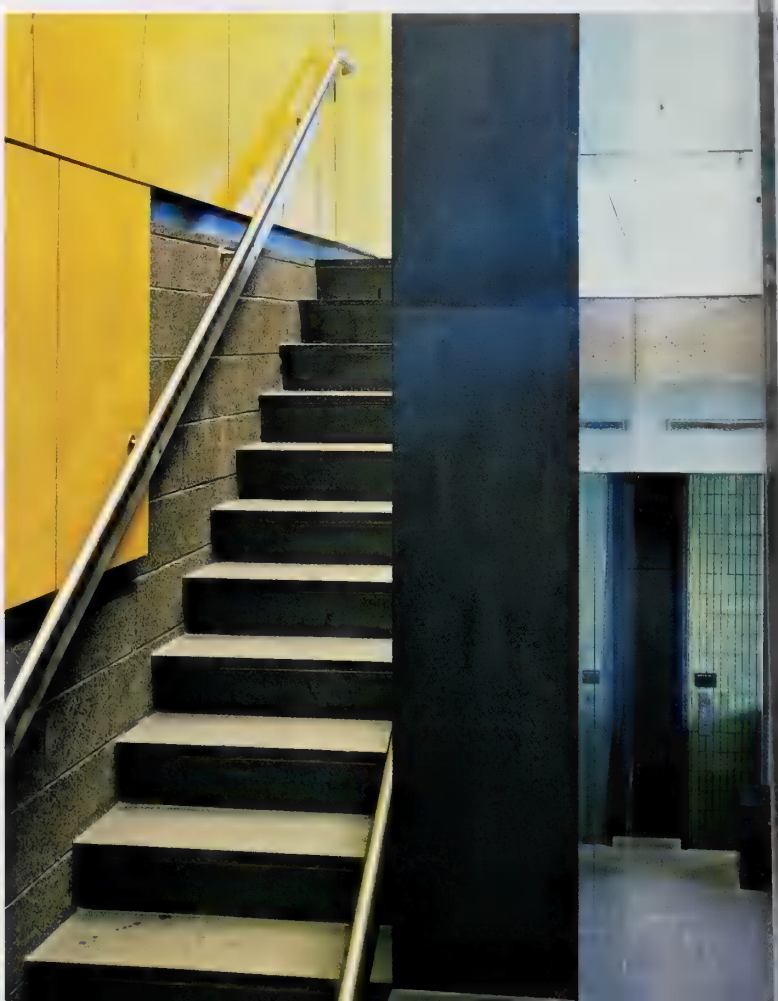
Two kinds of brick are used for the center, both of which show a certain affinity to that of the older Johns Hopkins architecture. Although most of these neo-Georgian buildings are built of Flemish bond, Williams and Tsien chose a ruddy, solid, running bond, but with the rough wood-molded texture of the the university's original brick. Alternating with the solid red brick is an extruded brick, custom-speckled with a gray glaze to pick up the dark color of the headers in the university's Flemish bond.

On the upper level of the center, translucent glass introduces natural light to the interiors through manipulations of section that recall the architects' Folk Art Museum in New York [RECORD, May 2002, page 202]. The horizontal extension of space, however, emphasized by changing floor planes and angled walls, bring an arresting variation to the theme.

Commentary

The center fits into the landscape with an ease that should increase with the passage of years, as the masonry walls acquire a patina of age and more landscaping grows in. Right now, even though the brick has a rich, red crustiness, whole swaths of it seem unremitting—it cries out for ivy. Williams and Tsien are aware of the need for additional landscaping, especially on the slope at the perimeter of the center, as well as in the piazza at its core.

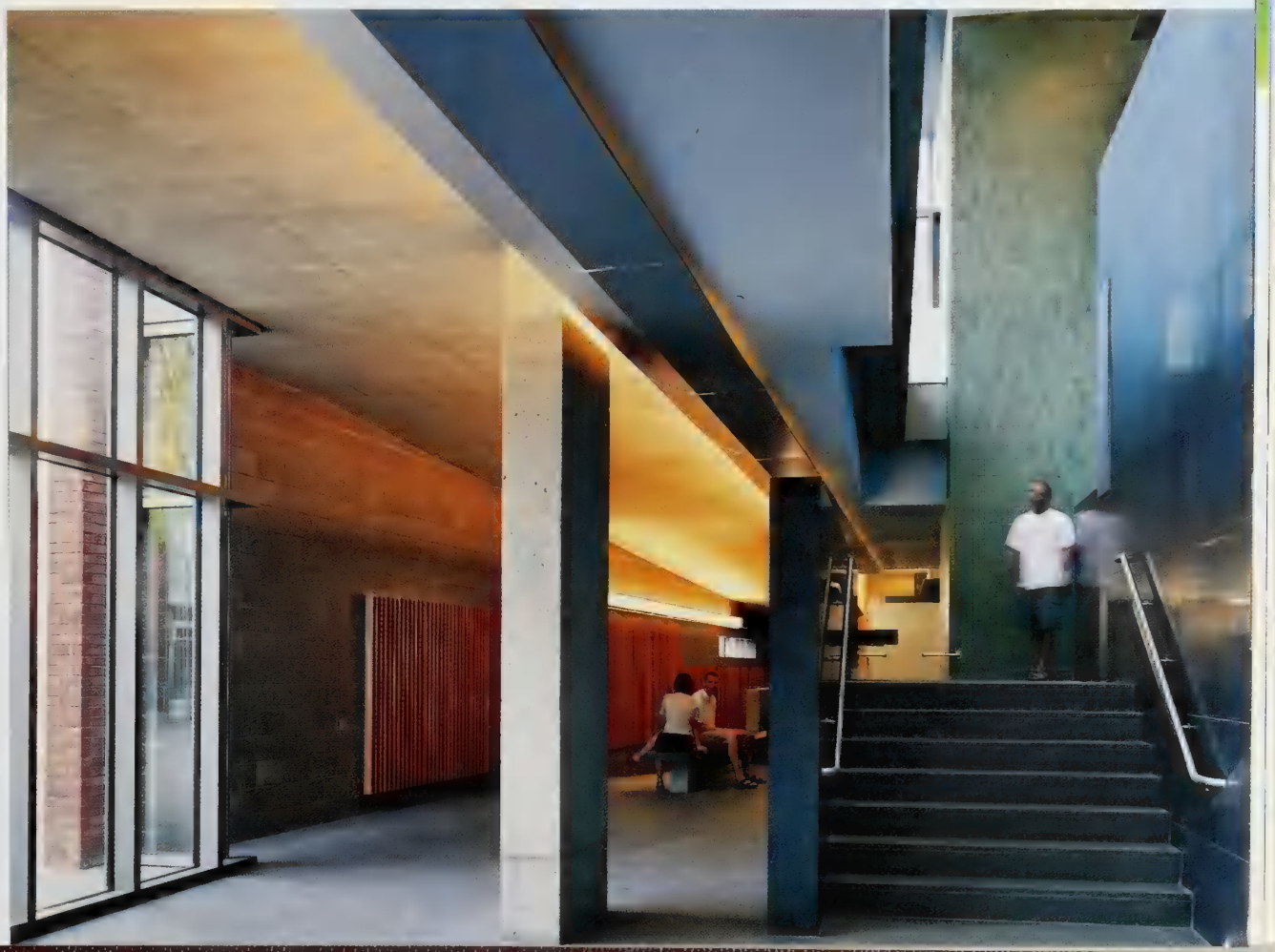
Nevertheless, both outside and inside the buildings, the interaction of horizontal and vertical spaces and the variety of materials work to great effect. The luxuriant textures and tones of the interior materials, such as Chinese Northern Black granite, honed for the walls and flame-finished for the floors; cherry-wood slatted wall panels and seating; and light green ceramic tile, enrich the spaces. "We believe in a Ruskinian reliance on natural materials," says Williams. "Our architecture may be different, but not the principles." Although the rooms for dance or music may not have the same pizzazz as the circulation spaces, they serve as calm end points for this dynamic choreography of planes and surfaces. ■







Vertical slices of space open up the interior, where changes in floor, wall, and ceiling planes are emphasized by rich materials and colors. Cherry-wood panels, Chinese Northern Black granite, and green ceramic tile are seen in the digital arts/dance building (right and top right), while the music and art studio building is marked by a Finnish plywood mural (opposite) and a bright yellow ceiling over the student activity offices (above).



Donald Danforth Plant Science Center

Creve Coeur, Missouri

4

AN AGRICULTURAL RESEARCH CENTER BY NICHOLAS GRIMSHAW AND PARTNERS IN ASSOCIATION WITH HOK CREATES A STRONG CIVIC PRESENCE.

By Peter MacKeith

Architect: *Nicholas Grimshaw and Partners in association with HOK. NGP project team—Andrew Whalley, Vincent Chang, Graeme Dix, William Horgan; HOK project team—Bill Odell, AIA, Tom Goulden, AIA, Mark Husser, AIA*
Client: *Donald Danforth Plant Science Center*
Consultants: *Arup (structural, MEP); Landmark Contract Management (project manager); Davis, Langdon & Everest (estimator); HOK (landscape, laboratory, technical, and interiors architect); McCarthy (general contractor)*

Size: *166,904 square feet*
Cost: *$50 million*
Completion date: *September 2001*

Sources
Maple and cedar supplier: *Architectural Woodwork*
Maple paneling: *RPG Diffuser Systems*
Metal ceilings: *Ceilings Plus*
Stairs and railings: *Equus Metals*
Curtain wall, terra cotta wall system, and brise-soleil: *Josef Gartner GmbHd*
Lab casework: *Kewaunee Scientific*
Greenhouses: *Nexus*
Stone-flooring: *Zickel*
Growth chambers: *Conviron*

www For more information about the people and products involved in this project, go to Building Types Study at **architecturalrecord.com**.

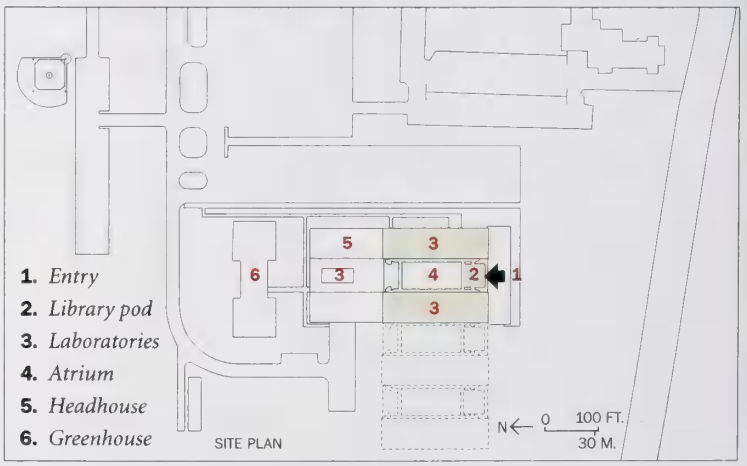
The U.S.'s central agricultural region can be thought of as a 1,000-mile-diameter circle drawn over the American heartland, bisected by the Mississippi River, with St. Louis at its midpoint. Several major civic, academic, and corporate institutions that conduct agricultural and botanical research are located here, and the region shows promise as an important center for agricultural research.

Program

These ambitions were to be signaled by a new building for the Donald Danforth Plant Science Center, located in Creve Coeur, Missouri, just outside of St. Louis. The center is an independent, nonprofit institution that partners the Missouri Botanical Garden with the Monsanto Company and four nearby universities. Dr. Roger N. Beachy, president, says, "Our mission is to significantly increase our understanding of basic plant biology through research and training. That new knowledge can be applied for the benefit of human nutrition and health and to improve the sustainability of agriculture worldwide." Beachy's clearly stated mission resulted in Nicholas Grimshaw and Partners' (NGP) exactingly articulated design for Danforth.

Peter MacKeith is associate dean at the School of Architecture of Washington University, in St. Louis.





Solutions

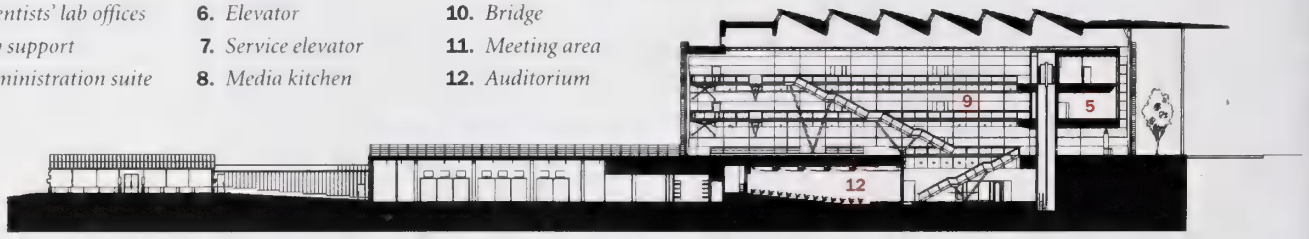
Monsanto donated the center's 40-acre site opposite its suburban St. Louis offices. This led to a two-stage development process for the center. First, HOK was engaged as the planner and architect for the research laboratories. Later, NGP's conceptual proposal was selected from the entries of an invited competition. The design engages the site directly, providing a grand portico to the street on the south side of the building. NGP's basic diagram incorporates two laboratory wings. These flank a three-story atrium, where scientists and the public who use the research cen-



The front of the Donald Danforth Plant Science Center is covered by a brise-soleil and flanked by a reflecting pool.



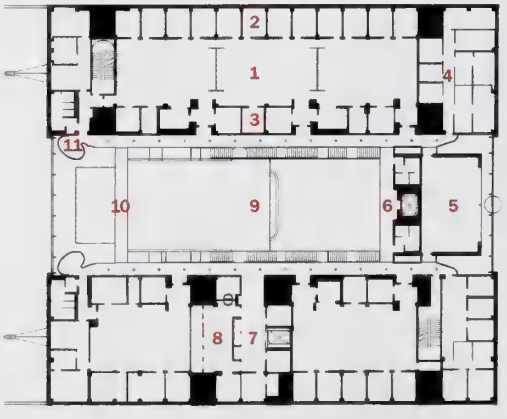
1. *Laboratories*
2. *Scientists' lab offices*
3. *Lab support*
4. *Administration suite*
5. *Library*
6. *Elevator*
7. *Service elevator*
8. *Media kitchen*
9. *Atrium*
10. *Bridge*
11. *Meeting area*
12. *Auditorium*



ter can interact. Footbridges span the atrium connecting the balconies that run along the atrium's east and west sides and terminate in small meeting areas. On the second and third levels, rooms are organized so that the enclosed laboratories are adjacent to libraries and social spaces, known as "pods."

Originally, the exterior comprised serrated elevations and roof profiles and a variety of cladding materials specific to each facade's orientation. A more uniform approach emerged after value engineering: all four elevations now employ a unitized rain-screen wall system made of terra-cotta panels set into aluminum frames. These extruded aluminum sections, which support the wall system, stand vertically, transmitting lateral pressure and suction to the reinforced-concrete building structure behind. The high-performance assembly responds efficiently to rainwater, water vapor, temperature, and air transmission. Window openings are crossed horizontally by aluminum louvers that modulate daylight while still permitting the occupants to see outside.

The panelized system allowed a high level of quality control and craftsmanship in manufacturing and also served to expedite erection. The north and south ends of







Research greenhouses (above, opposite) are located behind the building. The egg-shaped spaces cantilevered from the balconies (above) are small meeting areas. The atrium (right) is daylit by north-oriented roof monitors.





Close-up views of the curtain-wall system (above), cantilevered balconies, and bridges (right) show off the kind of detailing NGP is known for. HOK was responsible for the planning and design of the laboratories (below).



the building's central core are enclosed by glass curtain walls supported vertically by rolled-steel mullions. The south wall is shaded at its top by a dramatic, horizontal brise-soleil, which also functions as the building's cornice. The atrium's roof is a series of north-facing, sawtooth monitors that act together with the shaded glazing to the south to allow soft light into the atrium.

The atrium's active climate-control system is a low-velocity, high-volume displacement ventilation system. Cool air is introduced at the lowest level of the atrium and displaces the warmer air above it. Conditioned air occupies only the lowest, inhabited portion of the atrium, a zone that is approximately 7 feet in height. The upper volume of the atrium is maintained at higher temperatures and creates a thermal blanket over the conditioned space. The upper-level circulation zones at the perimeter of the atrium employ the same climate control strategy to create cooled microclimatic zones.

Commentary

Given the anomie of the center's suburban locale, the architects have succeeded in creating a building that achieves a civic presence through its siting and its use of high-quality materials. Employing formal organizing principals, NGP and HOK were able to design environments that will engender collaboration among researchers while remaining publicly accessible. They have used daylighting and climate-control technology in thoughtful, energy-efficient ways to create a precise, elegant building. ■



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Bronze – Lifesize (7 ft), 37" and 11" high

"CIRCLE OF PEACE"

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Bronze – Available with 3, 5 or 7 children
Lifesize (48"), 10" and 6" high

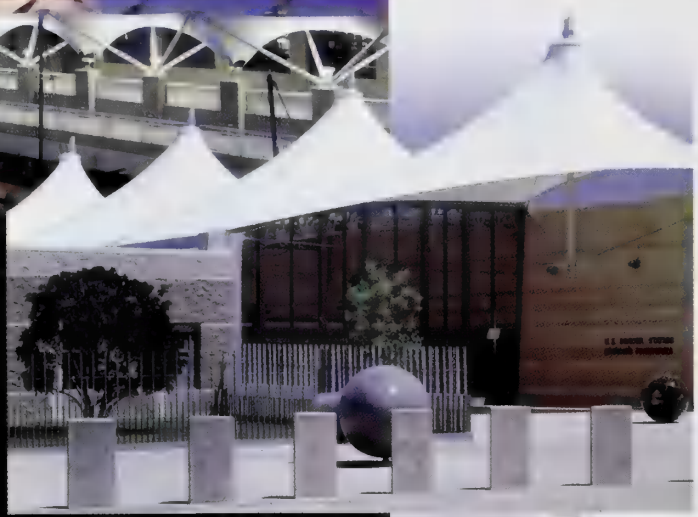


CIRCLE 63 ON READER SERVICE CARD
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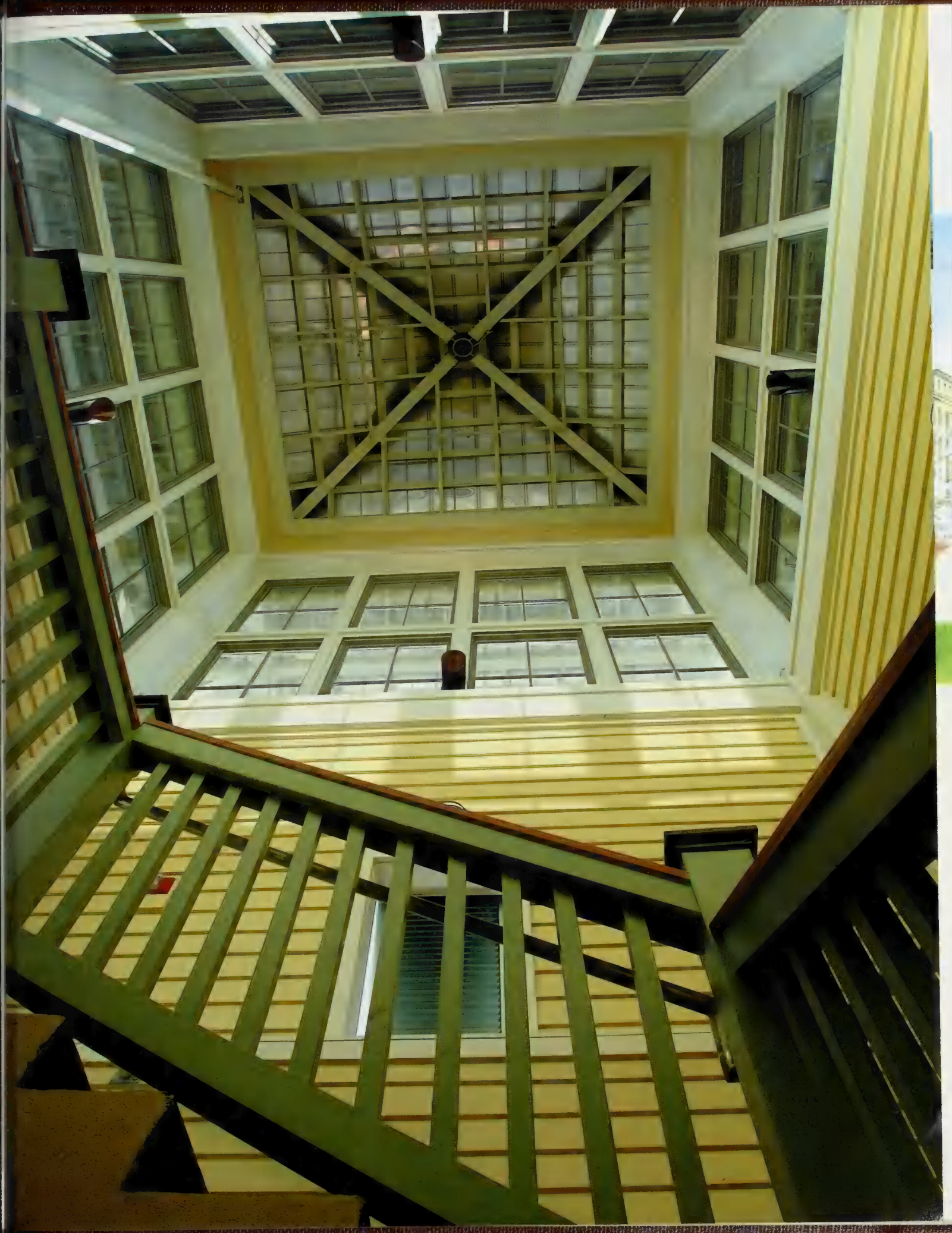
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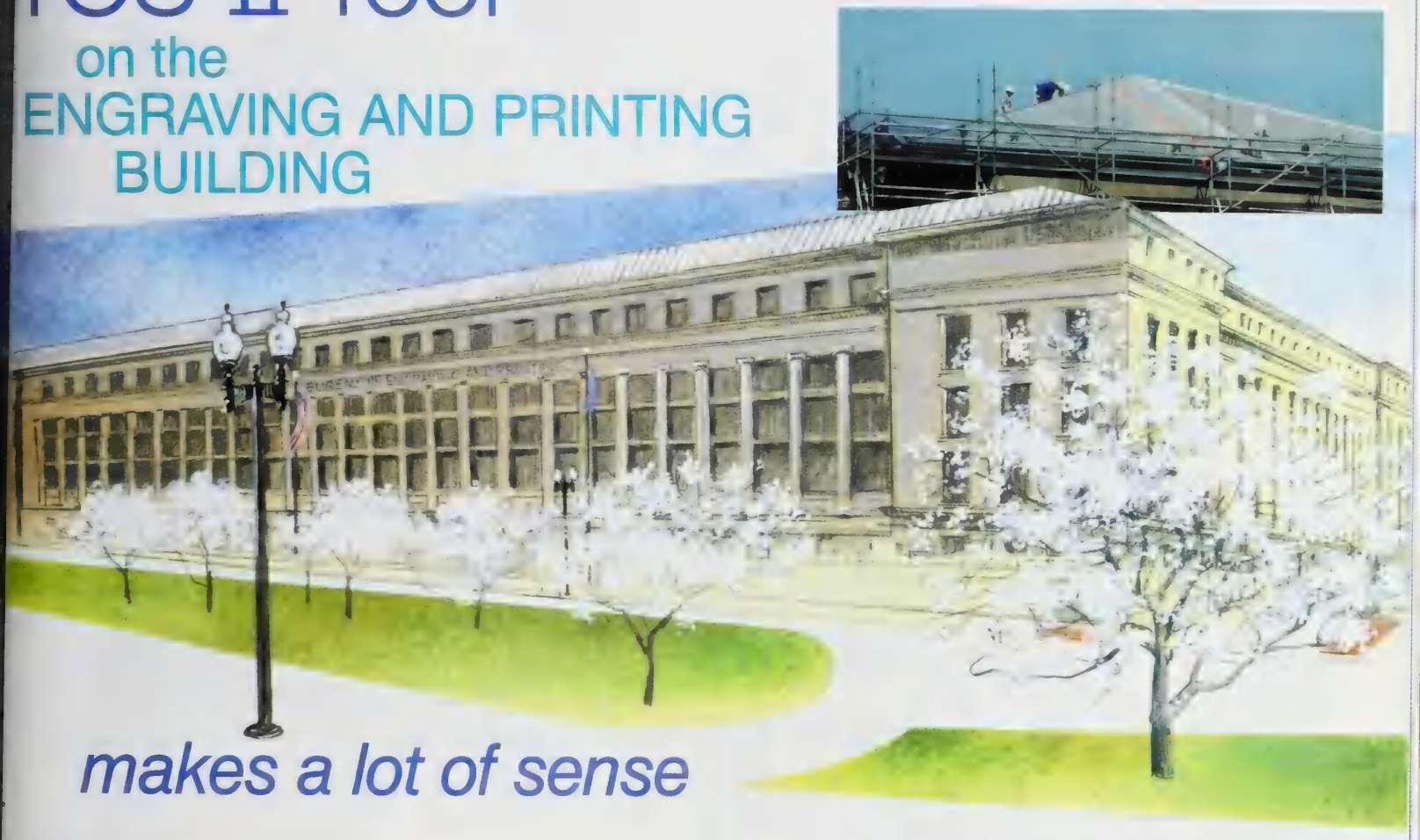
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Facade Engineering Emerges as a Highly Specialized Science and a Striking Art Form

THE MODERN CURTAIN WALL HAS EVOLVED FROM STATIC WRAPPER TO ACTIVE BUILDING SYSTEM

By Sara Hart

In *Building Skins* (Birkhauser), Christian Schittich writes, "[In the Fagus Works shoe factory (1911–25)], Walter Gropius succeeds in collaboration with Adolf Meyer in suspending a curtain wall in front of an industrial hall as filigree, transparent skin that no longer has any load-bearing function and clearly announces this freedom." He and other pioneers of Modernism liberated the building skin from the load-bearing frame, and there was no going back. Such liberation, however, absolved the facade maker from any obligation to the interior. Architects make careers out of creating wrappers for undetermined spaces.

Today, facade engineering is synonymous with curtain-wall design, which is to say that every facade is a curtain wall. Facade innovation first came in the form of incremental improvements—more energy-efficient glazing units, structural sealants, lighter materials. More recently, innovation has been associated with new products—new composite materials, high-strength concrete, fabrics, and photovoltaics.

The following projects show that real innovation grows out of successful problem-solving, whether it be in response to the impossible site or in developing systems integration.

Between bedrock and a hard place

The Austrian Cultural Forum (this issue, page 122) was wrenched vertically out of the ground and stuffed horizontally into what can only be called a mean fissure in a tightly packed urban block of Midtown Manhattan. The program for the building, which is only 25 feet wide and 81 feet deep, called for a 24-story structure on the site of a former town house. This incredibly tight space created a multitude of challenges for Austrian architect Raimund Abraham in his first American commission.



Raimund Abraham's Austrian Cultural Forum in Midtown Manhattan slopes away from the street in accordance with strict zoning regulations.

The building envelope was the major design problem from the onset—how to give an iconic presence to the entrance facade while meeting New York City's stringent zoning requirements.

Project manager Simone Giostra oversaw the development and installation of the glass, steel, and aluminum curtain wall. (The side and rear facades are clad in Rheinzink—a zinc, copper, titanium alloy with highly uniform properties important in facades.) From the beginning, the challenges were daunting for construction of the entire building. There was virtually no staging area for equipment and materials. Deliveries had to be small and precisely timed. With little room to stage the erection of the facade, Barney Skanska, the concrete subcontractor, used special forms built on-site. Above the 14th floor, the contractor switched to a jump-form system from Doka, an international formwork company. The system is a self-supporting concrete formwork, anchored to the lower portion of the same concrete wall under construction. It can be erected without any additional scaffold or support from the ground.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article and the article about Raimund Abraham's Austrian Cultural Forum on page 122. To receive one health, safety, and welfare credit, turn to page 170 and follow the instructions.*

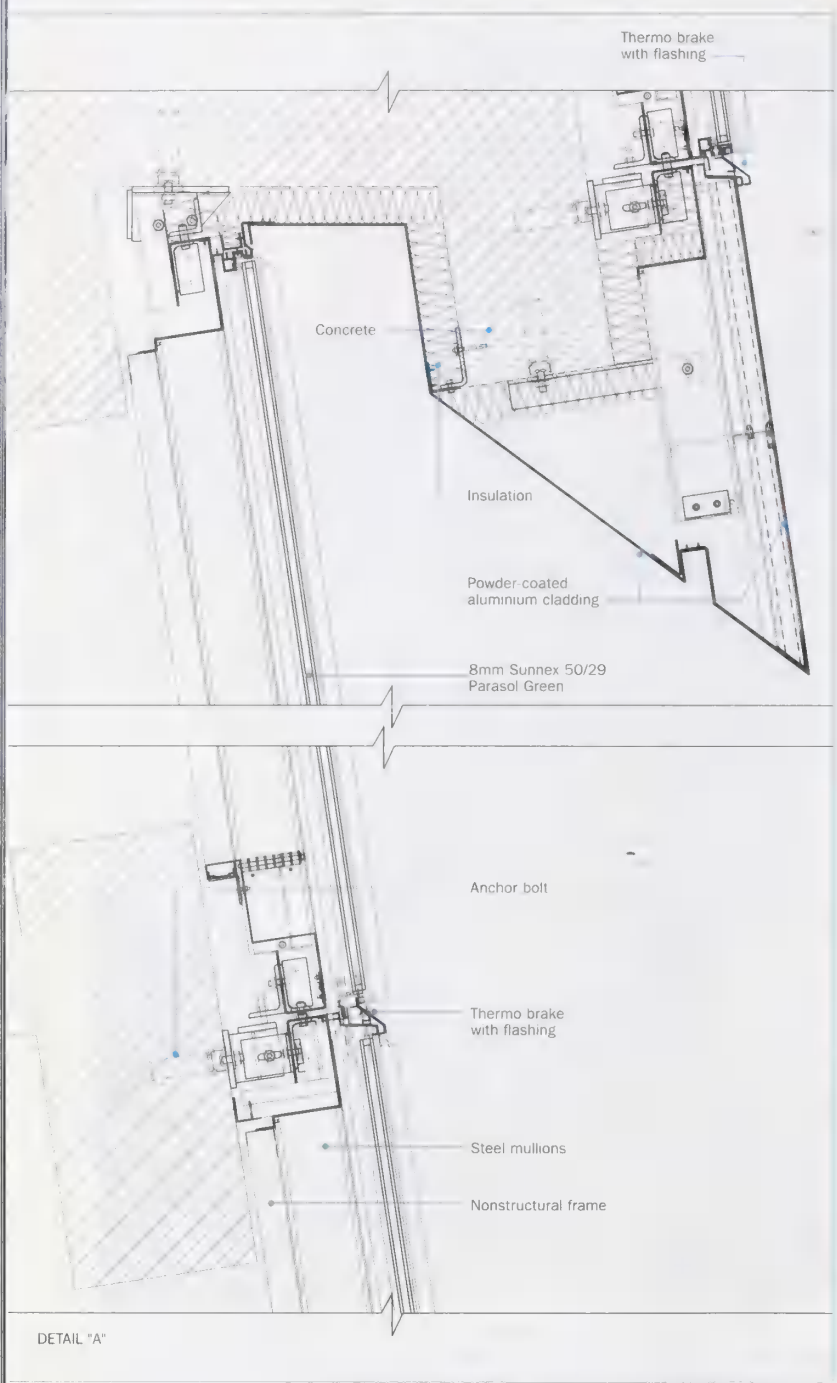
LEARNING OBJECTIVES

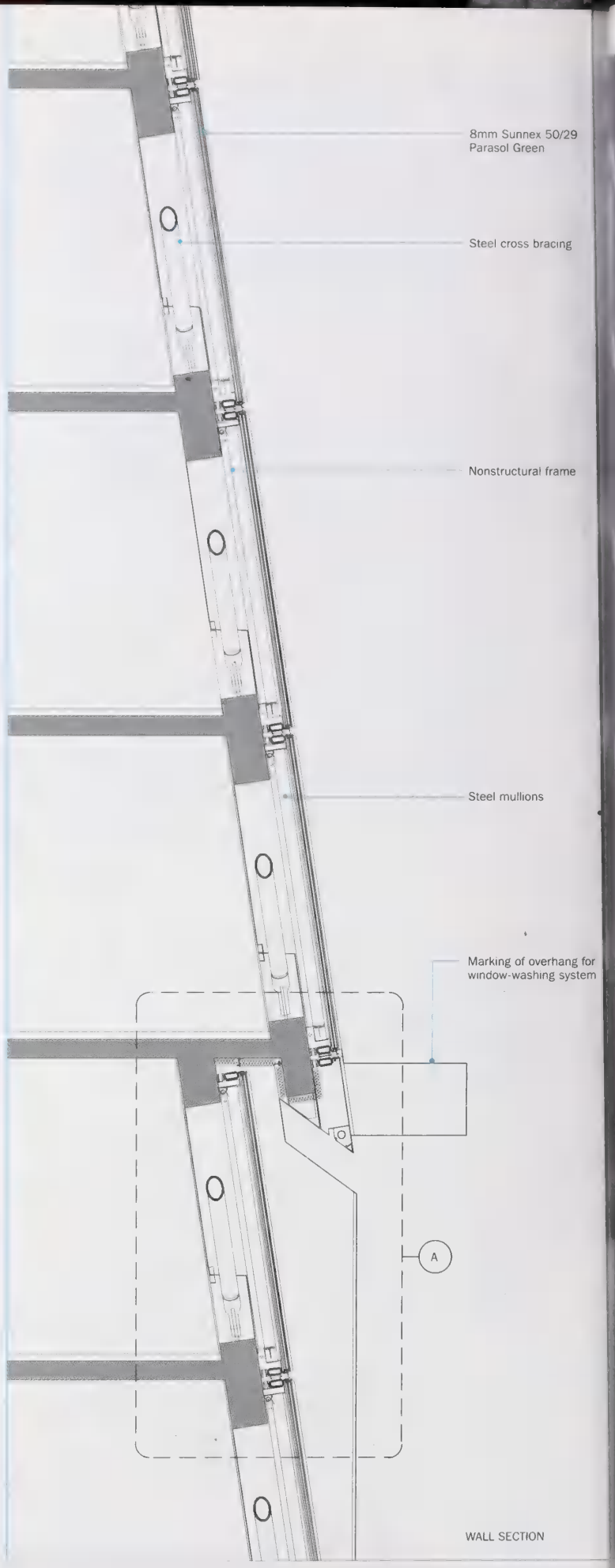
After reading this article, you should be able to:

1. Describe innovations in facade design.

2. Explain how the facade works with other building systems.

VVVVV For this story and more continuing education, as well as links to sources, white papers, and products, go to **architecturalrecord.com**.





Austrian Cultural Forum, New York City

The south facade of the 33,000-square-foot building is a glass, steel, and aluminum curtain wall. The facade slopes 11 degrees away from the street in order to meet the city's setback requirements. No special permits were needed. The overall structure is high-strength concrete, and the curtain wall is fastened to the structure with brackets. The facade is cross braced to prevent vibrations caused by wind loads.



The facade composition directly relates to the functions in the interior. The director's office (above) projects from the glass wall.

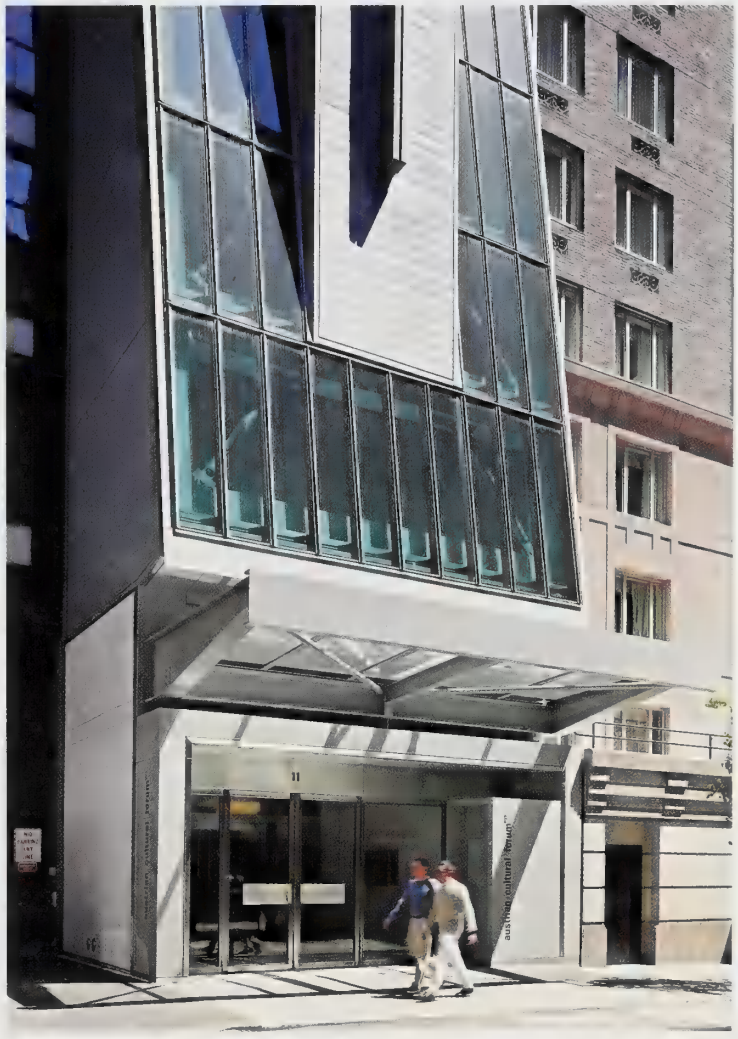
The south-facing entrance facade is a complex assemblage of materials—high-strength concrete, architectural concrete, aluminum and glass fenestration, and steel cross bracing. The architectural concrete (8,000 psi) was to be visible through the curtain wall, so the interface between panel and concrete was critical.

The fabrication and installation of the south facade was plagued by what can only be described as a clash of building cultures. The facade's glazed panel system was fabricated by an Austrian company called GIG Fassadenbau GmbH, but the structure on which the curtain wall was to hang was built to American standards. "In Europe, the tolerances are much tighter than in the U.S.," Giostra explains. "Whereas the panels were designed with a tolerance of $\frac{1}{16}$ of an inch, the concrete structure allowed for as much as 1-inch variance." Furthermore, the design called for the architectural concrete to be visible through the curtain wall, precluding any workable but visually unacceptable solutions. Because of the discrepancy, the brackets connecting the curtain-wall panels to the concrete superstructure required a survey of the entire south elevation and fabrication of new steel brackets, which could absorb much wider concrete deviations.

It has been described as a puzzle by the engineers, the contractors, and the construction manager. It might be more like building a ship in a bottle, fashioned with European precision and American perseverance.

Process is innovation

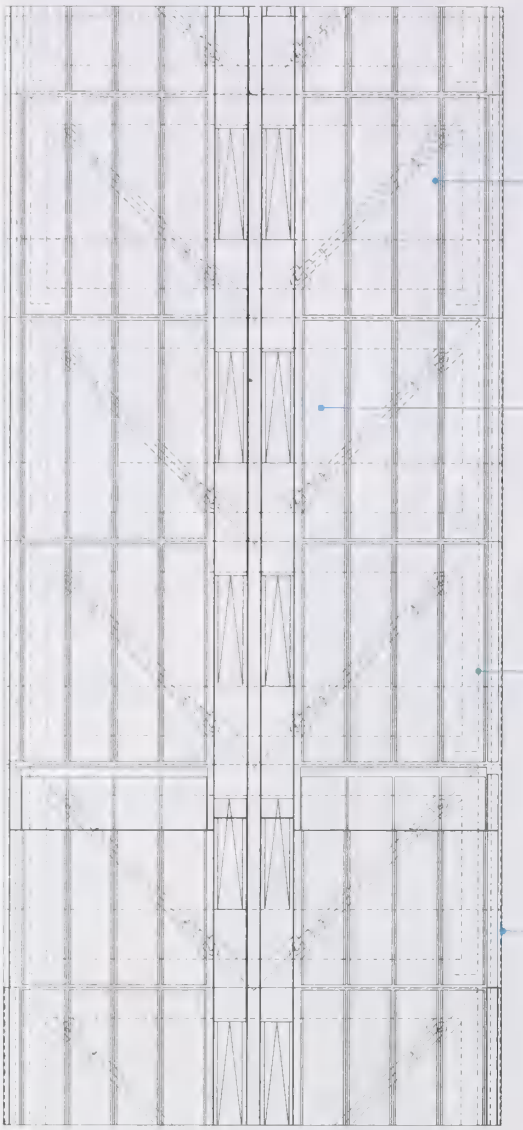
The era of facade as passive envelope is over. Its demise is long overdue, according to the late Reyner Banham, who in 1969 wrote in *The*





Arup's New York office engineered the facade, as well as the mechanical, electrical, and plumbing systems. Wind-tunnel tests showed that the building would be subjected to uncomfortable vibrations. The engineers stiffened the front facade with steel cross bracing. Because the steel is for stiffening only, the bracing did not require fireproofing.





CROSS BRACING DIAGRAM

Architecture of the Well-Tempered Environment that the intellectual division between structure and building systems is patently false. He lamented that discussion of what makes a building habitable rarely goes beyond space-making and form-giving. As sustainability becomes an assumed goal, such thinking seems counterintuitive. If he were here today, Banham would be glad to see the recent trend away from this segregation of building functions to what is often called "the whole-building concept," in which all the systems—HVAC, plumbing, electricity, structure, and the building skin—are designed to be interdependent. To some engineering minds, it is in the process that realizes the whole-building concept that real innovation is to be found.

A HIGH-QUALITY FACADE MUST BE ENGINEERED IN THE EARLIEST STAGES OF DESIGN DEVELOPMENT.

A successful example of this can be seen in the Sobanski Palace in central Warsaw, Poland, designed by Dublin-based A&D Wejchert Architects and engineered by Buro Happold's Bath, England, office. Stephen Tanno, group director at Buro Happold Facade Engineering, applied the firm's process theory to an office-building addition to the palace.

A high-quality facade must be engineered in the earliest stages of design development. Tanno believes that the traditional approach to facade design, which has a specialist contractor arriving on the scene only after the construction documents have been bid, does not work well for complex projects. First of all, the facade contractor comes in too late after the design has been fully developed and tendered. At this stage, it is economically impossible to change the fundamentals of the documents. But more important, in a situation where the building envelope is integral to environmental performance, contractors too often don't understand the interdependence of all the systems, even though they are experts in cladding and know their own facade systems extremely well. If the contractor—or the engineer, for that matter—comes in too late, too much time is spent revising details in the shop drawings.

Tanno relies on a rule of thumb to tell him if his process-oriented approach is working. "When the facade package is tendered, if the bids come in within 10 percent of each other, then the documents were clear and complete," he says. "By going the traditional route, I've seen bids can come in as much as 100 percent apart."

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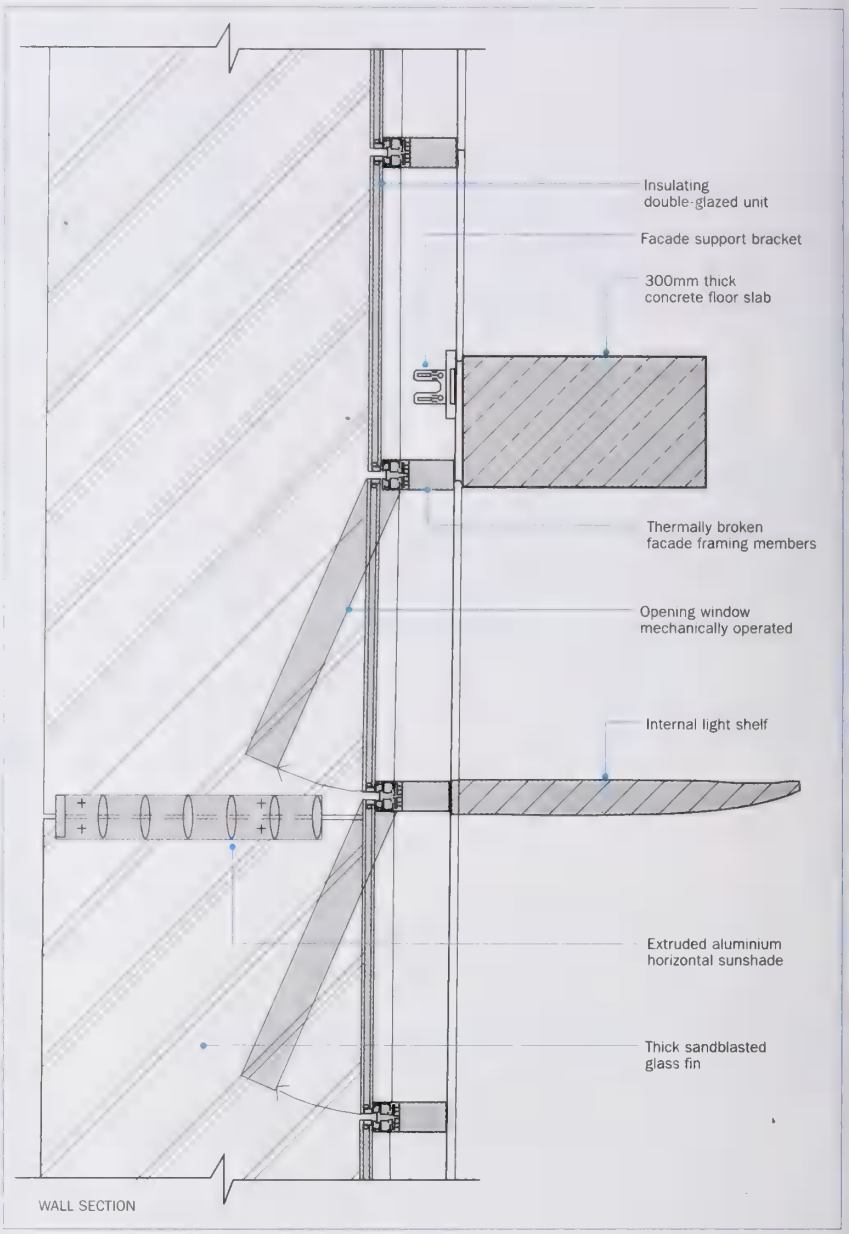
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External glass blades on the Sobanski Palace facade (left) act as sun "blinkers." The blinkers are sandblasted to protect the occupants from oblique solar glare. The floor-plan depth is shallow; the floor-to-ceiling elevation is high; and the facade is fully glazed—a combination that ensures excellent daylight penetration (below).





More than a wrapper

Process has never been more important as sustainability becomes an essential performance criterion and forces the interdependence of the systems in order to meet its objectives. Facades are no longer mere wrappers. They are another vital system that can improve or undermine the whole-building approach. For the Sobanski addition, the client wanted to maximize natural ventilation while providing indoor comfort mechanically during peak summer and winter conditions. This might be called having it both ways, or, as the engineers describe the solution, "a mixed-mode building-environment-control concept." More crucial to the process approach, the facade solution must be part of a total building concept.

MORE CRUCIAL TO THE PROCESS APPROACH, THE FACADE MUST BE PART OF A TOTAL BUILDING CONCEPT.

The principles of natural ventilation greatly influenced the composition of the fenestration in Warsaw. The fully glazed facade system now incorporates high-performance, thermally reflective, double-glazed units. The operable windows near the ceiling of each floor and at the midpoint are outwardly opening, electrically controlled vents and provide single-sided ventilation. Successful ventilation of this type depends on adequate floor-to-ceiling height and the position and size of the operable windows. By increasing the ceiling height, the natural rising temperature gradient between floor and ceiling is increased and pulls outside air through the openings in the facade. Tanno concedes that this type of strategy probably would not work in a heavily partitioned space, but it works very well at Sobanski, which has an open plan and lightly partitioned spaces.

The facade design allows for nighttime opening of the upper vents, which, when coupled with the thermal mass of the exposed concrete floor slabs, will typically lower space temperatures by a few degrees in summer. "The high-level ones are automatically controlled by the Building Management System (BMS) and only operate at night to cool the structure," explains Tanno. "The mid-level vents are occupier-controlled and are normally shut when the BMS operates the high-level ones outside office hours. This makes a significant contribution to reducing cooling-plant size and, hence, lowering capital and operating costs."

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Vertical glass blades on the exterior act as sun "blinkers." The blinkers are sandblasted to increase opacity and protect occupants from oblique solar glare while letting diffused light into the interiors. In order to mitigate the possibility of thermal-shock fractures, the blinkers were made of thermally toughened glass. The idea of screening a facade with cantilevered glass fins was a bold one, and its success, Tanno maintains, is due to a carefully considered collaboration among the Polish contractor, the Italian fabricator, and the engineers. (The facade fabricator/contractor was Aluglass International. The curtain-wall system it adapted specifically for this project was Far-Wall 200 from the Italian company Progetti.) "It helped the contractor enormously to work from a set of clear and concise intent details, developed by our facade engineers," explains Tanno.

Resource center

The evolution of the building envelope from static wrapper to a complex, active building system has been partly motivated by the economics of energy consumption and the promise of sustainability. The proliferation of private and public research and development has produced a juggernaut of products and processes. In October 2000, Harvard University and the Massachusetts Institute of Technology launched an Internet portal—BuildingEnvelopes.org—as a public resource providing state-of-the-art information on innovation in advanced facades, heating, cooling, ventilation, and lighting systems to support preliminary design of energy-efficient buildings.



The facade is made of thermally reflective double-glazed units.

Originally supported by its founding industry member, Permasteelisa, an Italian facade fabricator, the Internet project has since developed into a consortium of professionals, universities, and research organizations that support and provide information for the site. The portal and consortium are managed by the Harvard Center for Design Informatics, which is a research center of the Graduate School of Design. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Facade Engineering Emerges as a Highly Specialized Science and a Striking Art Form" and the learning objectives provided.
- Complete the questions below, then fill in your answers (page 240).
- Fill out and submit the AIA/CES education reporting form (page 240) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. Buildings in which all systems are designed to be interdependent use which?
- **a.** segregated building systems
- **b.** whole-building concept
- **c.** passive envelopes
- **d.** transparent skins

2. Rheinzink is an alloy of which metals?
- **a.** zinc and aluminum
- **b.** zinc, copper, and brass
- **c.** zinc, copper, and aluminum
- **d.** zinc, copper, and titanium

3. A wall that has no load-bearing function is known as all except which?
- **a.** facade
- **b.** curtain
- **c.** structural
- **d.** skin

4. What was the clash of cultural differences in building standards at the Austrian Cultural Forum?
- **a.** American concrete was denser
- **b.** American tolerances were tighter
- **c.** European tolerances were tighter
- **d.** European panels were thicker

5. When sustainability is part of the building's program, this forces facades to become which?
- **a.** a passive wrapper
- **b.** an interdependent system
- **c.** an independent system
- **d.** a segregated system

6. Facade innovation came about through the use of which?
- **a.** more energy-efficient glazing
- **b.** structural sealants
- **c.** new composite materials
- **d.** all of the above

7. If all the bids for the facade come in within 10 percent of each other, this usually means which?
- **a.** there is collusion among the contractors
- **b.** none of the contractors picked up on the finer details
- **c.** all of the contractors interpreted the documents the same
- **d.** the contractors all used the same estimator

8. A facade that provides both natural and mechanical ventilation is known as what type?
- **a.** mixed-mode environment
- **b.** double-sided ventilation
- **c.** double-glazed units
- **d.** thermally reflective environment

9. In liberating the building facade from the load-bearing frame, architects were absolved from any obligation to which?
- **a.** the structural system
- **b.** the interior
- **c.** the occupants
- **d.** the code officials

10. What feature of the Sobanski Palace addition facade was a bold idea?
- **a.** cantilevered glass fins
- **b.** opaque glass
- **c.** thermally toughened glass
- **d.** high-level vents



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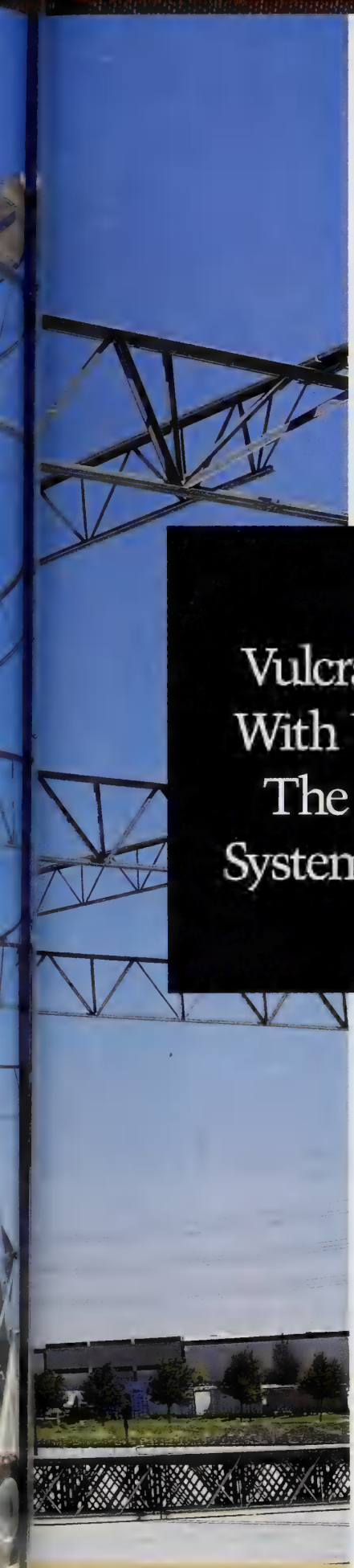
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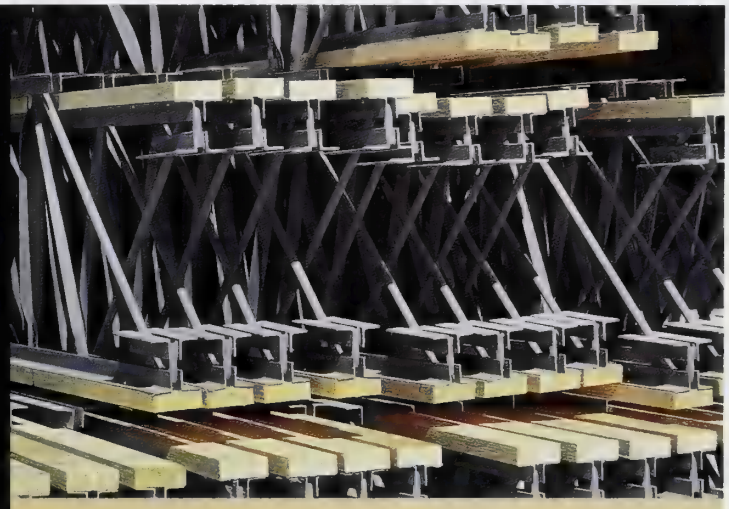
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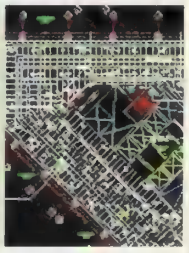
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Digital Architect

Taking the pain out of upgrades

By Alan Joch

Don't lose your footing on the upgrade treadmill. Rules of thumb on managing new software releases help firms large and small maintain their balance.



Sometimes, it just makes sense to walk away from a fight. That's what Kevin J. Connolly, AIA, did when software giant Autodesk released the first version of its Architectural Desktop (ADT) software. At the time, his firm, Connolly Architects, in Milwaukee, was using AutoCAD Release 14, and Connolly was wary of ADT because it represented a major change in features and function compared to AutoCAD. "We intentionally stayed away from it," Connolly, president of the five-person firm, recalls. "When ADT 2 came out, we upgraded to that version," he says, confident that any bugs in the program would have been fixed by the second release.

Connolly's firm has since switched to a new design platform, Graphisoft's ArchiCAD, but the owner still refrains from adopting every major software release as soon as it hits the market. He believes new-release bugs are endemic in the industry, not an ailment of any one vendor. "When a big new version of ArchiCAD comes out, maybe we'll take every other one of those," he says.

Connolly's wait-and-see attitude isn't unique to small firms with modest IT resources. Some technology managers at multiple-division companies that employ hundreds of CAD users take a similarly restrained approach to the regular incremental and blockbuster upgrades common among software vendors who serve architects—even adopting, like Connolly, the philosophy of installing every other new release. "I like to be number two and let somebody else do the debugging," says Michael Walters, director of IT in the New York office of Perkins & Will.

Alan Joch is a business and technology writer based in New England. Contact him at ajoch@monad.net.

www For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **architecturalrecord.com**.

Hidden costs

In the hotly competitive and innovative world of software development, regular changes to applications are a fact of life. No one can blame architects for being cautious. The initial cost of upgrading CAD software can range from $200 to $600 per workstation. Multiply that by the number of CAD users, and the bill quickly climbs into the thousands of dollars. But that's just the beginning.

Additional costs accrue from hardware upgrades. Often, new software requires architects to pack their machines with more memory and storage capacity. In some cases, a newer, faster CPU may be necessary to run the revision effectively. "Hardware upgrading is one of the scariest parts" of adding new software, says Michael Horta, principal of Computers in Design, a New York–based training and consulting company. "Do you buy new machines or spend $2,000 to upgrade existing computers?" He notes that the minimum hardware recommendations provided by vendors aren't always practical. "Whatever the box says, automatically double that," Horta advises.

Firms must also consider personnel costs. CAD specialists may need 4 to 8 hours of instruction, at $30 to $40 per hour, to learn the software's new capabilities. Chris Barron, AIA, vice president of architecture for Graphisoft, recommends budgeting for training costs at two times the price of the software upgrade.

Putting new features into practice takes even more time. "You take your production person, who is running 80 miles an hour and cut them back to 50 miles an hour" while they learn to use the upgrade, says Horta. "Do that across the whole office, and it's a sizable cost." A company may not fully benefit from a revision's enhancements until users get comfortable after four or five projects, Horta adds.

Fewer blockbusters

For their part, makers of CAD software recognize the resistance toward upgrades that require extensive retraining and corresponding hardware upgrades. "Architects tend to be quite resistant to discontinuous upgrades," says Graphisoft's Barron. Autodesk says it is avoiding big revisions every 18 to 24 months in favor of smaller, incremental releases that boost behind-the-scenes performance but keep changes to the user interface to a minimum, according to Alex Neihaus, senior director of marketing for the building industry division. One increasingly common option used by these software suppliers, along with MicroStation vendor Bentley Systems, is software subscriptions, where users pay an annual fee, in addition to the cost of the software, in return for free upgrades and technical support. Revit, the parametric building modeler recently acquired by Autodesk, has evolved with 12 incremental releases over the past two and a half years and is marketed exclusively on a subscription basis.

While subscriptions may assuage some upgrade pain, they don't make everyone happy. Connolly complains about paying up-front for new, unknown features that his company may not need. Adds Horta, "I've seen people who just shelve many of those smaller upgrades."

Winning strategies

How can technology-savvy architects devise upgrade strategies to help make the process as painless and economical as possible? The strategy may require as much art as science, especially when it comes to

assessing the potential return on investment of new software. "I've got one of those Magic Eight Balls on my desk, and when I turn it over, it says 'upgrade' or 'don't upgrade,' " quips Walters. Metaphysics aside, upgrade veterans and consultants advise architects to consider six key areas when facing a new release of design software.

1. Kick the tires. Thoroughly evaluate the potential benefits of the proposed upgrade before unleashing it into the production environment by analyzing how (or if) new design features and changes in the work flow will translate into making the firm more efficient. Questions to ask vendors include: How will my firm be able to work more quickly or with fewer staff assigned to projects? Does the upgrade offer tools to facilitate communication with clients and collaborators? What new graphical and visualization capabilities does the new software offer? Also consider any potential drawbacks, such as changes the new software may require in existing symbol libraries and plotting standards. (On the plus side, architects give software makers high marks for maintaining file compatibility from one release to the next.)

2. Get the timing right. "I never ever say upgrade immediately," says Horta. Don't risk the status of an ongoing project by interrupting it with new software. Unless a new feature has a direct bearing on the special requirements of a project in progress, delay any upgrades until the work group completes the assignment.

3. Go slow. Make changes in a piecemeal fashion to identify potential problems to work around before they affect large numbers of staff or projects. "With CAD software, I have almost never been able to roll out a new release in one big lump," says Walters. Instead, he typically installs the new software on workstations in the IT department to give his staff time to get a feel for its new capabilities and potential limitations.

4. Use the buddy system. When it's time to introduce new software to designers, designate "upgrade teams" to learn the program. Perkins & Will organized architects into project teams of eight people, who then attended outside training classes together to prepare for the first release of ADT. "We started with the stronger CAD people and built a core group of knowledgeable people" who could help others learn the program as the software was introduced to the rest of the firm, says Walters.

Connolly agrees that learning is faster "when you have others to bounce questions off of," but he believes smaller firms like his don't have enough staff to effectively create upgrade teams. He avoids upgrading each of his five architects individually in favor of a full-office rollout. "If you do it one person at a time, they'll never get it," he warns. Connolly advises architects to tap the knowledge of CAD resellers who can help the design staff work through the transition process.

5. Clean house. Once the new software has been loaded on CAD workstations, erase the previous release. "If someone gets a rush job, they'll immediately go back to the old version," Horta warns.

6. Keep talking. Don't conclude that the upgrade process is finished once everyone is using the new software on a daily basis. People continually find shortcuts as they use the program, and these discoveries should be shared throughout the company. "Every week, we have a CAD meeting to compare notes and talk about how the software is working," Connolly says. If a particular feature of the software doesn't perform as advertised, "invariably someone else will show how to 'pat your tummy and rub your head' to get it to work," Connolly says. ■



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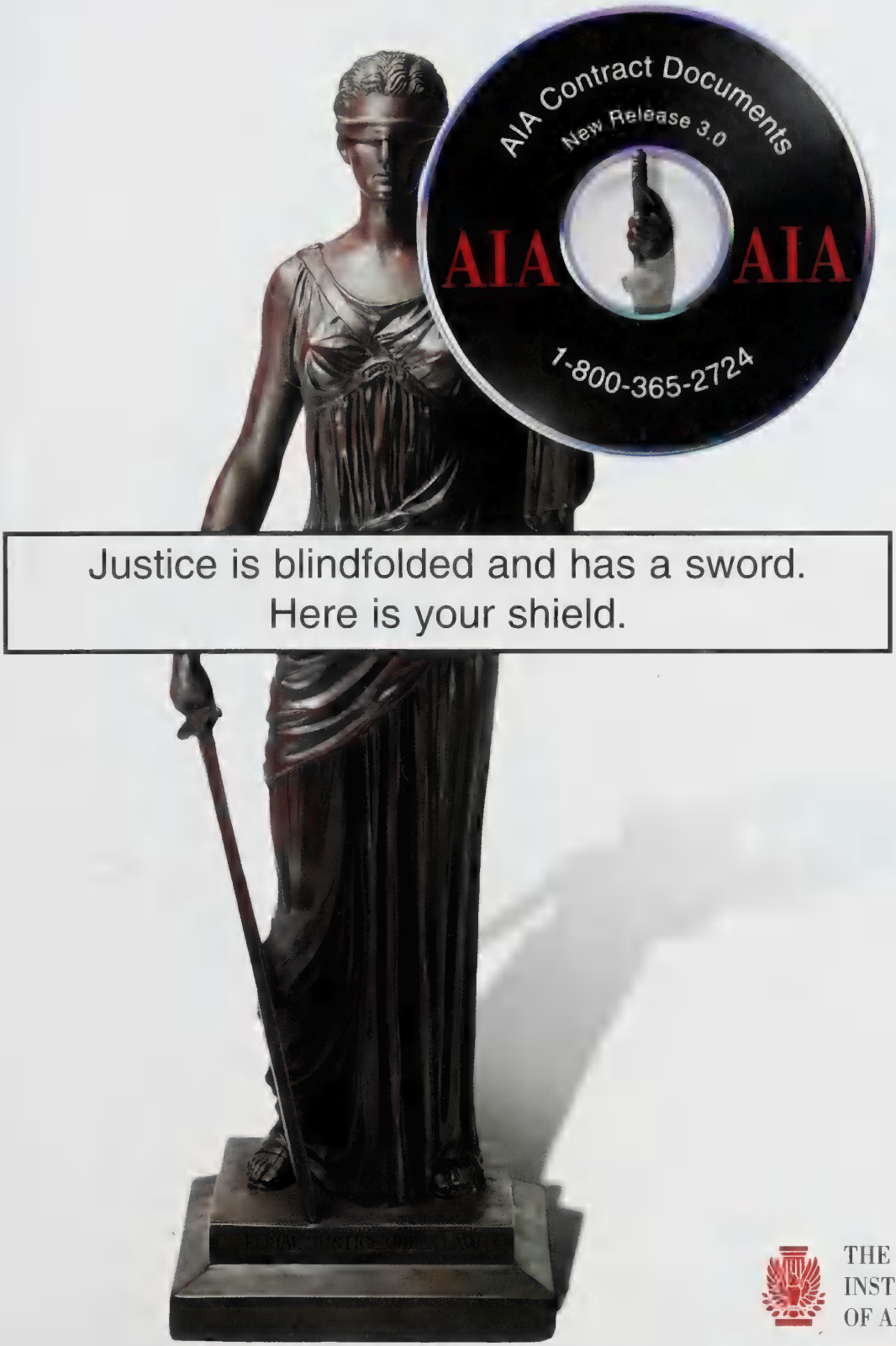
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PLUMBING SENSOR TECHNOLOGY BRINGS INNOVATIVE SOLUTIONS TO BATHROOM DESIGN

Using Electronic Plumbing Products to Enhance Public Restroom Facilities

by: Peter Jahrling – Director of Design Engineering – Sloan Valve Company
John Lauer - Director of Technical Support Services – Sloan Valve Company

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Use the learning objectives below to focus your study as you read **PLUMBING SENSOR TECHNOLOGY BRINGS INNOVATIVE SOLUTIONS TO BATHROOM DESIGN: Using Electronic Plumbing Products to Enhance Public Restroom Facilities.** To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 183, then follow the reporting instructions on page 242 or use the Continuing Education self report form located at *architecturalrecord.com.*

LEARNING OBJECTIVES:

- Explain how sensors help meet recent federal regulations and laws.
- Identify types of plumbing sensors and how they are operated.
- Describe why sensors are now commonly used in public restrooms.

Visit the restroom in almost any airport and you will find that the faucets, toilets and urinals are being operated and controlled by automatic sensors. "Hands Free" faucets and flushometer valves are also now common sights in a wide variety of public facilities including office buildings, restaurants, medical facilities and schools. Once thought of as fairly unique, sensor operated plumbing products are now being considered standard products for use in almost all types of commercial rest rooms.

Public facilities require restroom accommodations that are unique to that facility's use and traffic patterns. The plumbing fixtures and fittings that are selected for use in these public facilities must be designed and built to accommodate and withstand the specific needs of that commercial restroom environment. The commercial restroom is a harsher environment than that experienced in a residential setting. The variety of people, the volume of traffic, and the variation of individual "bathroom habits" encountered dictate that the products chosen must cover a broad spectrum of diverse activities.

A restroom in a commercial facility is used for a variety of purposes. This includes the obvious 'biological' activities for which a restroom is designed, as well as unexpected activities, not remotely associated with the restroom's intent. Additionally, the characteristics and habits of the restroom user have changed over the last few years. This has resulted in new attitudes, expectations and concerns by society regarding restroom design (In an interesting book, "Are You Normal", published by St. Martins Paperbacks, the author, Bernice Kanner, dedicates a chapter to restroom habits). The general public has become keenly aware of transmittable bacteria and viruses by hand contact as evidenced by the rapid education through the media of communicable pathogens. This awareness has manifested itself in users expecting public facilities to have "hand's free" plumbing fixtures.

The regulatory climate has changed as well in the Unites States. The Federal Energy Policy Act of 1992 mandated that all commercial plumbing fixtures comply with maximum water use requirements. Water closets must now operate on only 1.6 gallons of water per flush (gpf). Urinals cannot exceed 1.0 gallon. And faucets used in public commercial installations must flow at a maximum rate of .5 gallon per minute (gpm) or be designed to meter no more then .25 gallon of water during a single cycle. A standard lavatory faucet cannot exceed 2.2 gallons per minute (gpm). This legislation recognized that the precious resource of water is not inexhaustible and that plumbing fixtures can be designed to operate on less water and still effectively comply with industry standards.

The Americans with Disabilities Act (ADA), which went into effect in 1992, is another Federal law that has tremendously affected commercial restroom and plumbing product design. ADA guidelines were developed to ensure that public facilities were accessible and compliant to handicap individuals and users with a wide range of disabilities.

All these interactions of public attitudes and governmental regulations, combined with the building owners' desire to reduce operating costs have brought to the forefront the use of sensor operated plumbing products within the commercial restroom.

Sensor activation is quickly rendering the use of handles, levers, push buttons and kneepads obsolete in a wide variety of products that are commonly found in a public or institutional restroom. Sensors have been integrated into a wide variety of restroom products. In addition to meeting mandated water use and accessibility regulations, sensor operated plumbing products improve the public restroom environment, both functionally and aesthetically. Sensor operated bathroom products help eliminate the notion of the public restroom as a "negative building space".

IMPROVED RESTROOM HYGIENE



There are a number of basic reasons for using electronic plumbing products in public facilities. These include improved restroom hygiene.

The most important reason for using sensor-operated faucets and flushometer valves is to improve restroom hygiene. By the very nature of what a restroom is designed to do, the fixtures and fittings in a public restroom must come in contact with the bodily functions of a wide variety of human beings. Cleanliness is important not just for the aesthetic value of the facility, but also from the health and safety standpoint. The use of sensor operated plumbing products will keep the restroom cleaner. "Hands Free" products also help prevent the transmission of disease from one person to another.

When a person touches the handle on a faucet or a flush valve, residue on that person's hand or fingers may be physically transmitted to the handle of the product. This residue can than be transferred to the next person touching the handle. Studies have identified that bacteria can be spread from one user to another from a faucet handle or knob. This is called "cross contamination". The use of "Hands Free" faucets and flush valves eliminates the need for physical contact between the user and the plumbing device. This in turn helps to eliminate the possible transmission of a wide variety of pathogens, including hepatitis, salmonella and a wide host of other communicable diseases. Since restroom users are aware that multiple people have been using the facilities, a restroom that incorporates hand's free plumbing devices is also perceived a lot less risky to use. This projects an overall perception to the user that the restroom is "hygienic".

One of the greatest hygiene concerns in a public restroom has to do with odor. In many public restrooms, people do not flush the toilets or urinals. Knowing the above, they don't want to touch the handles on the fittings. When a urinal goes un-flushed, problems are experienced with odor in the restroom.

Sensor flushing devices are designed to deliver a single flush after each use. This eliminates the problem of standing urine and waste in the plumbing fixture. Rinsing and keeping the water fresh in the fixture is a better alternative than the use of deodorizers and other methods of "covering up" the odor. This is particularly important in a public restroom, as many people are extremely sensitive to perfumes and other fragrances that are common in deodorizers. Sensor plumbing products address this odor problem by eliminating the odor causing waste.

REDUCED MAINTENANCE AND HOUSEKEEPING

The use of sensor plumbing products can also reduce the level of housekeeping needed in the restroom. Because sensor faucets have no handles or knobs to grab, soapy water that can drip from the hands will not be left behind as puddles on the sink deck. Urinals and toilets stay cleaner as they are evacuated thoroughly after each use. Since there are no mechanical levers on sensor operated plumbing products, the user has no reason to touch the product, thus reducing the need to wipe down and clean the product.

Another common housekeeping problem in a public restroom is created when paper towels are left on or in the sink. This may be caused by people who will use a paper towel to shut the faucet off. Many people are aware of the cross-contamination that can occur after they wash their hands if they touch the handle to shut off the faucet. To address this, they will actually use a paper towel as a barrier between their hand and the plumbing device. Quite often, that paper towel is left in the sink where it can clog the drain and cause further problems. Surveys of facilities that have retrofitted to sensor operated plumbing products have identified that the use of these products have made the facilities easier to keep clean.

"Hands Free" operation will also reduce the physical impact on a flush valve product. Because people do not want to touch the handle on a flushometer valve, there is a tendency to use their foot to trip the valve. When a flush valve is kicked, it increases the wear and tear on the product. This will eventually lead to increased product maintenance requirements. Since sensor operated plumbing products do not require touching, there is less wear and tear on the product.

WATER CONSERVATION

Water conservation is a benefit that can be tied to the use of sensor-operated faucets. With a sensor-operated faucet, the water is only running as long as the user keeps his hands below the spout. Once the hands are removed, the water flow shuts off. In high frequency hand washing applications as performed by healthcare and food service workers, water savings can be tremendous. Since the water is not running while the person is scrubbing their hands, reaching for a towel or soap or looking for the comb in their pocket or purse, water savings of 60% to 80% can be achieved. Also to be included in the savings is the energy that will be required in heating the water and in treating the wastewater. The automatic shut off of an electronic faucet also eliminates water run on when the user forgets to turn the water off and the faucet runs on for an extended period of time.

Sensor operated flushing devices can also ensure consistent water use. Incorporating a sensor with a flush valve prevents the user from flushing the valve multiple times. Sensor flushometers are also made to meet the strict water use requirements mandated by the Energy Policy Act. However, it is important to note that the most important reason for using a sensor flushometer is to ensure rest room hygiene. These products are often used to address the problem of someone who has not flushed the valve, thus leaving behind a soiled fixture. If a valve goes unflushed, water is not used. However, there will be odor and hygiene problems. A sensor flush valve is designed to guarantee one flush per use. As such, water conservation benefits may not be extreme in using sensor operated flush valves. In this case, because we are disposing of human waste, hygiene is the most important factor as opposed to water conservation.

THE ADA AND HANDICAPPED ACCESSIBILITY REQUIREMENTS

One of the most significant reasons why architects and engineers are incorporating sensor products into their bathroom designs are to meet the requirements of the Americans with Disabilities Act (ADA) and other handicapped accessibility building code regulations. The ADA and other handicap standards typically dictate the amount of force required to activate a faucet, valve or other appliance in the restroom and have strict definitions for the size, positioning and design of plumbing products and their activators. The use of electronic plumbing products, which is specifically identified within the ADA Guidelines, easily allows the products to meet the force and positioning requirements.

Not only do the sensor faucets and flush valves meet the requirements for the handicapped user, these products also meet the needs and requirements of the non-handicapped user. As such, a single product meets the needs of the full user population. The use of sensor products, particularly in a retrofit installation is often the most cost effective way of bringing a restroom in line to meet the ADA requirements.

FACILITY IMAGE

All too often restrooms are considered backwaters when it comes to building design. Sensor plumbing products help put an end to this notion. The use of sensor products in a facility's restrooms helps convey a message to the public.

That message is that the building management is doing all that they can to improve the restroom experience for the user. It shows that the building is concerned about cleanliness, hygiene and accessibility.

Sensor products also convey technology. They identify that the facility is using the latest innovations to improve the bathroom experience. A wide variety of sensor valves and faucets are available to compliment almost every restroom design. Products are designed for both their functional and for aesthetic qualities, each of which is an important consideration when integrating electronic products into the facility.



THE HISTORY AND EVOLUTION OF SENSOR OPERATED PLUMBING PRODUCTS

Sensor operated plumbing products have been in existence over 25 years. Prior to that, the use of electronic timing mechanisms had been prevalent for flushing banks of urinals. These products were used in installations such as stadiums and schools that saw considerable usage. Initial application of this technology included motor operated flushometers that would evacuate multiple urinals through the use of a clock timer or a door switch that activated upon a user's exit. While these devices keep the fixtures clean, they often resulted in excessive water usage as they flushed whether the urinals were used or not.

Enhancements to these crude electronic devices eventually led to the design of individual fixture activation through the technology of sensors. Rather than evacuating the fixtures in an entire washroom through a timing mechanism, a sensor could now detect when a user was at each individual toilet or urinal. This resulted in substantial water savings, while guaranteeing that the fixture was cleansed.

With the advent of individual fixture activation, sensor technology migrated to other restroom products, including faucets and hand dryers. More recently this technology has also been incorporated into soap dispensers, towel dispensers, chemical dispensers, and fragrance dispensers. Considerable use of sensor operated plumbing products has occurred not only in North America but also in Europe and Asia.

The majority of products available on the market today operate using active infrared sensing devices. The technology used in these plumbing products is very similar to the technology used in other infrared devices, including the hand held remote control that is used with a television or a VCR. While other sensing devices can be found in the market, the use of active infrared sensors is most prevalent.

An active infrared sensor emits a concentrated beam of infrared light from the sensing device. This light is directed away from the product. When this beam of light makes contact with a user's body or hands, the light is reflected back to the sensor. A detector in the sensor picks up this reflected signal. Once the sensor sees this reflected infrared light, the internal circuitry then directs the sensor to function under pre-programmed guidelines depending on the type of product the sensor is being used with. This means the sensor will act as a switch, turning on immediately as in the case of a faucet application, or it may go into a hold and trigger sequence, as is the case for a water closet or urinal application.

While the majority of sensor products in the market today utilize active infrared sensors, other technologies are available with varying positive attributes promoted by their manufacturers. Other devices include passive infrared detection that detects changes in body heat, capacitive activated devices that can sense touch or presence, and RF or radio frequency activated devices. Each of these methods of activating plumbing devices has unique operating characteristics. However, it is not always safe to specify a product by the technology. Consideration has to be given to how the manufacturer has incorporated that technology into their products and how that development was achieved.

The first sensor-operated products typically operated on a low voltage power supply (usually 12 or 24 volts) and were connected to a transformer that was then connected to the building's electrical supply. These products are typically referred to as "hard wire". Integration of these products into a facility often required the work of both an electrician and a plumber. While "hard wire" products are still popular, a wide variety of products are now available with battery operation. The use of battery operation has allowed greater flexibility with reduced initial labor requirements. Battery operated sensor valves and faucets allow for easier and more cost effective installation. This is particularly important when retrofitting an existing building.

The advent of battery valves and faucets does not eliminate the need or use of the "hard wire" products. Battery products often have greater maintenance needs (the batteries will have to be changed at some point) and "hard wire" products are often the better choice when designing facilities that have high impact usage. It is important for the architect to consider the long-term use of the facility when making the product choice. In today's product selection an architect has a world of choice in a variety of electronic activated plumbing devices as well as a variety of operating characteristics.

Like all technology, the circuitry used for sensor plumbing products has experienced considerable evolution over the last 25 years. Sensing devices have been improved for their ability to better distinguish between light and dark colors and sensors are also incorporating other features to help eliminate problems that can be found with reflective light. These problems include the high intensity reflections that can occur off of mirrors and stainless steel.

Sensor design is continuing to evolve. Current products are often designed to be communicating. Faucets, flush valves and hand dryers and other devices can be linked together with information being collected by a PC or other electronic data device. Electronic plumbing products are being designed to be an integral component of a smart building design.

CHOOSING THE APPROPRIATE SENSOR PRODUCT FOR A FACILITY

With all the variety of products now available for the architect to specify it is important to understand that specific devices are not necessarily well suited for all projects. In many high traffic areas such as airports, bus stations, and sports stadiums, quick on and off operation and rapid cycling are a must as the owners of those facilities demand that users be serviced quickly and exited into the more important aspects of their facility. Water closet applications are particularly important because of the variety of activities that go on within a stall (activities that often go beyond their designed intent). Sensor water closet valves should feature an override button that allows the user a "Courtesy Flush" to clear any tissue or other debris that has been added to the bowl before or after is its primary use. Timing delays should be incorporated into the sensor circuitry to help prevent false flushing that can occur as the user moves within the water closet compartment.

Sensor design continues to evolve. Electronic plumbing products are being designed to be an integral component of smart building design.

"Point of Use" or "Body Bounce"

When considering automatic faucets for a facility, it must be determined whether "point of use" faucets should be used or if "body bounce" faucets should be incorporated. In a "point of use" automatic faucet the sensing area is immediately within the range of the user's hands under the faucet. In these instances, the faucet will only activate water when the user's hands are close to the water faucet. This saves water as flow is only dispensed when the user's hands are underneath the exit point of the spout. In a "body bounce" application a sensor turns the water on when a user is standing in front of the sink basin. This keeps the water flowing as long as the user is standing in front of that individual fixture or until the sensor reaches a preprogrammed time out setting. In cases where there are mirrors above the sinks inviting users to stay for extended periods at the fixture, a body bounce application wastes water.

Maximum Faucet Run Time

It should be noted that all automatic faucets specified on a project should have a maximum run time. A maximum run time, or time out setting, ensures that the faucet will still shut off even if the sensor is blocked. Vandals will often attempt to damage a facility by blocking the sensor and sink drain in the attempt to cause the faucet to remain on and ultimately overflow the basin. A maximum run time assures building owners that faucets will not continuously run, eliminating the chance of an over flowing sink basin. Products are available with both preset and adjustable time out settings.

Durability and Functionality

In high impact environments, which can include shopping mall facilities, school restrooms and high usage public access sites, the automatic plumbing fixtures must be strong enough to withstand abuse beyond the normal operation of the plumbing device. In these applications, concealed flushometers and more substantial low profile rugged automatic faucets are often recommended.



In the case of multifunction restrooms that may be in a hospital or process industry environment, "gooseneck" style faucets may be necessary in order for the user to not only wash their hands but also their forearms. The appropriate "gooseneck" product must reckon with the fact that the target area is a much larger area and the sensing elements need to be of a broader design to accommodate the rapidly moving targets of the hands and fore arms.

Adaptable to Diverse Habits

In all of the above applications, the sensor-activated product must be sturdy enough to deal with the diverse habits of a broad spectrum of the population. Pedestal type sensor operated faucets are subject to unintentional abuse by users unfamiliar with automatic faucets. These users try to activate the product by physically moving it from side to side. This is not an abnormal tendency as the innate habits of the general public have been trained to rotate some sort of mechanical device in order for the faucet to activate. Faucets need to be secure on the sink and should incorporate an anti-rotation device or positive stop to resist the rotation of the faucet. One automatic faucet on the market actually features a sensor installed separate from the faucet that looks like a faucet handle. This intentional deception causes the inexperienced user to grab for the round knob thinking that it is a manual handle. As the user reaches towards the device, the sensor picks up the hand and begins the flow of water from the faucet. This simply teaches the user how the faucet works.

When specifying electronic plumbing devices, a decision must be made as to whether or not to use a "hard wire" or battery powered product. This is not a simple task and must be evaluated by several offsetting considerations. In a large facility that uses multiple fixtures (such as a stadium), the correct plumbing device is typically the "hard wire" product. The additional initial cost of pulling the wire and having an electrician wire to the individual fixtures are out weighed by the inevitable maintenance of having someone going around and changing the batteries on all of the fixtures. While "hard wire" products are preferred in high impact facilities, battery operated products are ideal in low impact settings such as office buildings and restaurants. However at some point the batteries will require changing. Whether this is done only after the batteries "run dry" or whether a regular maintenance program is established to ensure that the batteries are changed regularly, the building operator must be aware of these requirements. While the architect need not be involved in planning these activities, it is certainly incumbent upon the architect to point them out to the customer who is in a better position to know what is important in his facility.

Impact of Other Electronic Devices

When specifying electronic plumbing devices, an architect must be sensitive to the many modern electronic devices that are now incorporated within a commercial restroom design. High intensity lights and ballasts can cause interference with some electronic plumbing devices. Only those manufacturers that use blocking electronic circuits should be considered when specifying electronic plumbing devices. Experience plays a very large factor when selecting electronic plumbing devices. Service both before the sale and after the sale are critical to the operation of the specified product.

Fit Facility's Traffic Profile

The ruggedness of the electronic plumbing product must fit the facility's traffic profile. Pedestal type faucets without anti-rotation devices are doomed in a harsh restroom environment. Equally inappropriate are obtrusive electronic plumbing devices in a pleasingly set architectural design where vandalism is not a prime consideration. When determining which product to use, it is important to consider both form and function. A delicate Euro-design faucet spout may be appropriate for the restroom in a 5 star restaurant, but would typically not be appropriate in an amusement park, just as a gooseneck faucet designed for a hospital scrub sink would not be appropriate in the 5 star restaurant.

INSTALLATION AND DESIGN REQUIREMENTS WHEN DESIGNING A RESTROOM WITH ELECTRONIC PLUMBING PRODUCTS

Sensor plumbing products often require greater care and expertise in their installation and initial adjustment. Most manufacturers identify that the majority of problems that occur with sensor plumbing products are the result of poor installation. As infrared light and other sensing signals are invisible to the human eye, the installer must ensure that the product is installed per all manufacturer requirements and recommendations. With many of these products it is not always as easy as "slapping it in" and walking away.

That said, it must also be noted that the installation, adjustment and initial operation of these products is not difficult. It is just different than a manually operated product. The installer must be fully aware of all installation requirements and must be held accountable for the quality of his work.

When specifying 'hard wire' products, the architect and engineer must be clear which trades are involved in the installation of the product. When wire must be run, and electrical boxes or conduit installed, it must be clearly identified which trade will be responsible for that phase of the installation. Most manufacturers supply specification guides, rough-in templates and concise installation instructions for their products. It must be made clear to the installer that these instructions must be fully reviewed and understood before the installation of the product is begun. Familiarity with the product and installation procedures will ensure that the product performs to the satisfaction of the user and building owner.

Because every bathroom design may vary slightly, fine-tuning or adjustment of the sensing range is often required and expected after the faucet is installed. These procedures can typically be made quickly and easily during the installation of the product. Many manufacturers often design their electronics to be housed separate from the actual plumbing fitting. This allows for easy access to the circuitry for making an adjustment without having to disturb or remove the faucet from the sink or the valve from the fixture. Recent advances in some manufacturer's products have incorporated automatic self-adjustment of the sensing device. This automatic calibration electronically adapts the sensing range of the sensor for the varying light conditions that may exist in a particular restroom design. These innovations save installation time and provide continued effective operation of the plumbing device through multiple building remodels during the life of the building.

Like any plumbing product, be it manually operated or sensor operated, it is important to be certain that the fitting is properly matched to the fixture. In the case of faucets, it is important to make sure that the hole punchings in the lavatory match the size and location requirements of the spout design being used. Sinks and faucets are available for both single hole and center set spread applications. Electronic flushometers must also be matched to the proper urinal and water closet fixture to ensure that the valve and fixture are matched for water use and connection compatibility.

When properly specified and installed, sensor operated plumbing products will perform to the expectations all those concerned with the commercial restroom. This includes not just the user but also the building owner and maintenance and housekeeping staff.

For many architects, engineers and building owners, the use of sensor operated plumbing products is no longer an option – they are a "given". Electronic flush valves, faucets and other restroom products have addressed specific building needs and are beneficial to both the restroom owner and the restroom user. As an architect it is extremely important to consider the needs of the facility when considering the choice of product. The proper selection and use of these products will enhance your building design and increase the overall satisfaction of your clients. ■

Click for Additional Required Reading

As part of this CES learning activity, you are required to read "Are You Ready To Go To War Over Water?". Some of the test questions below will relate to the additional reading material. Go to www.architecturalrecord.com/CONTEDUC/ConteducC.asp to access the material online. To obtain a faxed copy, contact Susan Kennedy, 800/9VALVE9, ext. 5034, fax 800/501-3989 or e-mail skennedy@sloanvalve.com.

Learning Objectives

At the end of this article you will be able to:

- Explain how sensors help meet recent federal regulations and laws.
- Identify types of plumbing sensors and how they are operated.
- Describe why sensors are now commonly used in public restrooms.

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 242. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record*'s website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. The Federal Energy Policy Act of 1992 requires that water closets must operate on how many gallons per flush (gpf)?
A:
a. 1.0
b. 1.3
c. 1.6
d. 2.0

Q: 2. Sensors make a restroom more hygienic by:
A:
a. Self cleaning themselves to be antiseptic
b. Reducing the spread of bacteria and disease
c. Reducing the amount of water used
d. Preventing the water from running onto the sink and floor

Q: 3. Sensors can reduce the odors in restrooms by eliminating standing urine and waste in plumbing fixtures.
A:
a. True
b. False

Q: 4. The most important reason for using a sensor flushometer is:
A:
a. To conserve water
b. To ensure restroom hygiene
c. To meet the ADA guidelines

Q: 5. Most sensor products on the market today operate by using:
A:
a. Active infrared sensing devices
b. Radio frequency activation
c. Passive infrared detection
d. Capacitive detection

Q: 6. A maximum run time will:
A:
a. Ensure that the faucet will shut off, even if the sensor is blocked
b. Control the temperature of the water
c. Increase the flow rate of the water

Q: 7. In a high use setting such as a stadium or airport, which is more likely to be a better option?
A:
a. Battery operated sensors
b. Hard wired sensors

Q: 8. The benefits of battery operation products versus hard wired products include all but which of the following:
A:
a. Greater flexibility
b. Reduced initial labor
c. Cost effective installation
d. Reduced maintenance requirements

Q: 9. Which type of flushometer is a better choice for conserving water?
A:
a. Non-hold open
b. Hold open

Q: 10. While studies vary, most agree that the largest usage of water is?
A:
a. Residential
b. Industrial
c. Commercial

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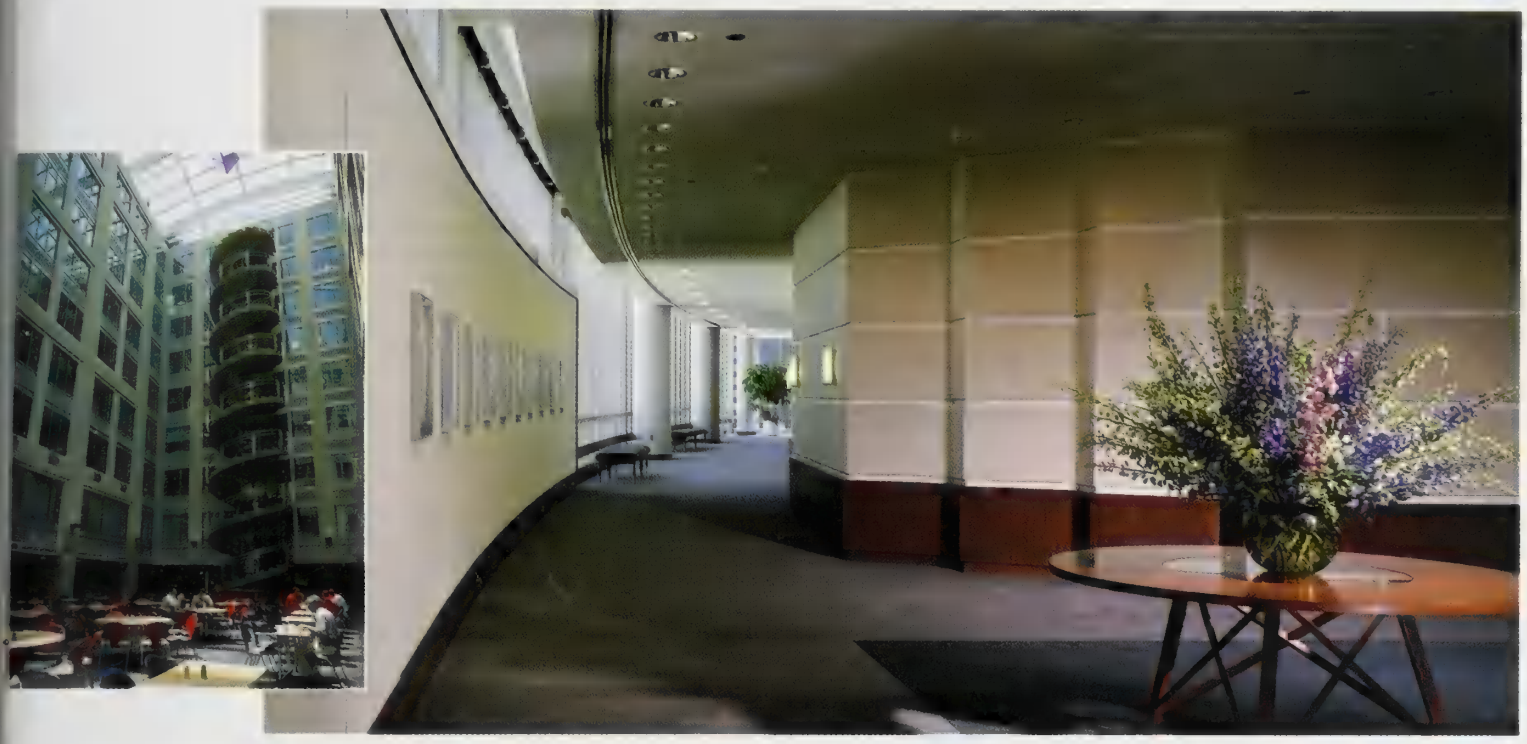
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JSG Presents:

Design Techniques for Controlling Movement Stress in Partitions and Ceilings

By: *Robert J. Lindegard*
Architectural and Construction Systems Manager (retired)
United States Gypsum Company

Buildings are subject to a wide range of forces that affect structural integrity. Some forces are obvious and easily identified. Hurricanes, tornadoes and seismic events, for instance, are examples of extreme forces that can severely impact building structure and create distress to building sub-elements such as partitions and ceilings.

Other forces are more subtle, but over time, they may be just as damaging to partitions and ceilings. Variations in temperature and moisture conditions, for example, can exert a significant force on a building's structural integrity, leading to (among other problems) cracking and other symptoms of distress in partitions and ceilings.

Cracking is the distress mode most often associated with plaster and drywall membranes. It is defined as a break or fissure originating on the surface of, or within the membrane, and is due to one primary cause – movement stress. More specifically, cracking results from a concentration of stresses that in magnitude exceed the maximum strain capacity of the material. The stress is relieved in the form of a break or crack.

Whether the stress movement stems from dimensional changes due to varying temperature or moisture conditions or from external forces that directly affect the membrane such as impact or vibration, structural movement can be controlled through a variety of design techniques. Perimeter relief and slip connections, for example, are used to reduce the transfer of stress from the structure to the building sub-elements. Integral stress relief can also be achieved through the use of expansion joints, control joints and construction joints.

Flat Plate Construction Stress

Flat plate concrete construction, which constitutes a large portion of residential high-rise buildings, is subject to two types of stress movement: racking and slab deflection.

Racking of the building frame is especially likely on the upper floors of the building and where exterior columns are exposed to major changes in temperature. As structural elements are exposed to racking stress, the partitions that they surround and support are distressed, typically leading to diagonal cracking in the partition face. In effect, the partition is forced to function as a shear wall, though it has insufficient strength to resist shear wall forces (Figure 1).

Another type of movement relates to deflection of the slab, which in flat plate construction increases for some time after the installation due to plastic creep of the concrete. Partition cracking from this type of movement results from flexural tension as the wall panel tries to follow the deflection of the structural floor (Figure 2).

While cracking resulting from flexural tension will decrease and diminish over time as the deflection process stabilizes, cracks due to racking are seasonally affected by thermal expansion and contraction, since the stress reverses with prolonged changes in outside temperature.

AIA/ARCHITECTURAL RECORD
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Use the learning objectives below to focus your study as you read **Design Techniques for Controlling Movement Stress in Partitions and Ceilings**. To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 189, then follow the reporting instructions on page 244 or use the Continuing Education self report form located at *architecturalrecord.com*.

Learning Objectives:

At the end of this article you will be able to:

- Control structural movement through design.
- Know proper installation techniques for control joints.
- Understand how drywall corner edge cracking can be minimized and how cracked plaster walls and ceilings can be repaired.

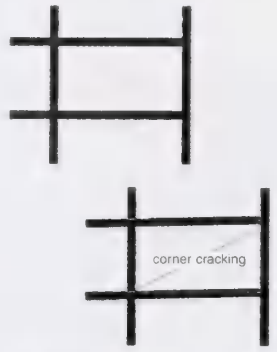


Figure 1. Frame movement can cause racking cracks in partitions.

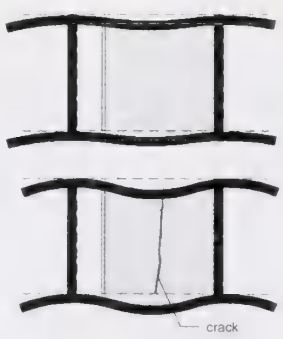


Figure 2. Slab deflection can also cause partition cracking.

Design Considerations

Design professionals can calculate the amount of anticipated movement required to cause racking stresses. Similarly, the amount of anticipated slab deflection can be calculated based on the initial dead load, with compensating partition and ceiling details providing for an amount ranging from two to five times the initial dead load deflection.

When designing partition and ceiling assemblies with perimeter relief or control joints, architects should bear in mind the following general considerations:

- Distress problems are usually most serious when partitions are tightly connected to the structural frame, or when partition membranes are abutted to the structure rather than supported by a suspension system.
- In high-rise buildings (more than eight stories), a relief joint must be incorporated at the periphery of the partition to allow for sufficient vertical movement to meet the anticipated stress conditions.
- Initial and creep deflection can be reduced with a stiffer floor system or with a pan-joist structure and a suspended ceiling. For flat plate construction, perimeter relief and/or control joints should be used to compensate for deflection of the floor and ceiling.

Control Joints

Control joints are time-proven means for accommodating stress relief. When designing with control joints, architects need to analyze the structure and determine when, where and which type of control joint will deliver the desired performance. Several options are available.

Expansion joints (also referred to as building control joints) prevent structural cracks due to building movement resulting from a variety of factors, including the structural materials (concrete, steel, etc.), the length of the structure, area temperature variations, foundation conditions and occupancy. Expansion joints extend entirely through the footing, foundations and superstructure of a building. They consist of a complete frame separated with a space between the structural members. They are filled or bridged with a compressible and resilient material, and they include a suitable joint closure on the outer face.

Expansion joints are needed:

- Where a long narrow structure abuts a rigid mass;
- At the ends of a low structure between two heavy masses and at intervals of approximately 150 feet;
- When a new building adjoins an existing building;
- In freestanding buildings at intervals of approximately 200 feet;
- When interior and exterior temperature differentials are extreme (for example, a cold storage building).

Construction joints are horizontal or vertical features introduced into the building design to conform with material limitations such as the amount of concrete that can be poured in a day's operation, the size of the selected component or panels, aesthetics and other considerations. Generally, these joints are located at ledges or other architectural features such as window jambs, heads and sills.

Control joints/perimeter relief joints are used to limit cracking in partitions and ceilings. Control joints are located within the face of a partition or ceiling, while perimeter relief joints (also called slip joints) are located at perimeters. Control joints are effective in limiting cracking due to tensile or compressive movement in a membrane resulting from thermal, hygrometric and structural effects. Perimeter or slip joints are necessary at perimeter interfacings to control shear movement when flat plate construction is employed.

Proper installation of control joints in wall and ceiling membranes requires breaking the lath or gypsum panels behind the control joint. On ceilings, the framing at control joint locations should be broken. In partitions, separate studs should be installed on each side of the control joint, and the runner track should be separated at the joint location. (Figures 3, 4, 5 and 6 detail suggested locations for perimeter relief and control joints.)

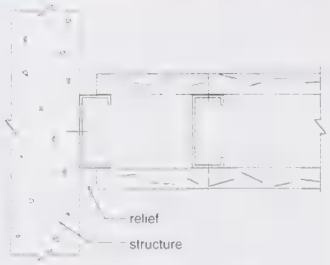


Figure 3. Perimeter relief at junction of partition and structural wall.

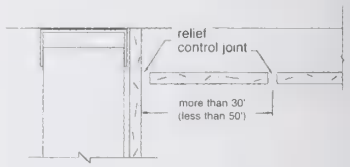


Figure 4. Perimeter relief of large ceiling space.

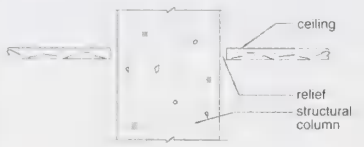


Figure 5. Perimeter relief of ceiling at structural column penetration.

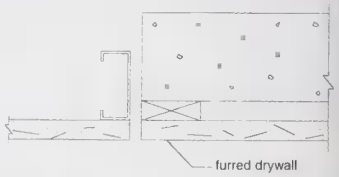


Figure 6. Control joint at junction of drywall partition and masonry.

The use and location of partition and ceiling control joints is the responsibility of the design professional. Generally speaking, control joints should be used:

- Where a partition, furring or column fireproofing abuts a structural element (except for a floor) or dissimilar wall or ceiling;
- Where a ceiling or soffit abuts a structural element, dissimilar wall or partition, or other vertical penetration;
- Where construction changes within the plane of the partition or ceiling;
- Where a partition or furring run exceeds 30 feet;
- Where ceiling dimensions exceed 50 feet in either direction with perimeter relief, or 30 feet without relief;
- Where exterior soffits and ceilings exceed 30 feet in either direction;
- Where wings of L-, U-, and T-shaped ceiling areas are joined;

(See Figures 7, 8, 9 and 10 for typical perimeter relief and control joint details.) Following are some additional design considerations regarding the use and placement of control joints:

- While ceiling-height door frames may be used as vertical control joints in partitions, frames of lesser height require control joints extending to the ceiling structure from both corners of the top of the frame.
- Control joints in ceilings should be located to intersect column penetrations, light fixtures and air diffusers that can impose stresses on the ceiling membrane.
- Experience has shown that to relieve stresses in portland cement-stucco surfaces, control joints should be spaced no greater than 10 feet.
- The ratio of length to width in ceiling membranes should be in the range of 1:1. For example, a Portland cement plaster ceiling formed of 10- by 10-foot panels (100 square feet) is considerably less prone to cracking than a soffit measuring 2 by 50 feet (100 square feet).
- A control joint in a partition should extend through a bulkhead/soffit condition with the same consideration for separation of the membrane and framing.

TYPICAL PERIMETER RELIEF AND CONTROL JOINT DETAILS

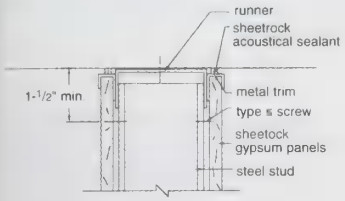


Figure 7. Perimeter relief of partition at structural ceiling.

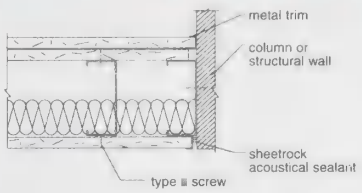


Figure 8. Perimeter relief of partition at structural wall or column.

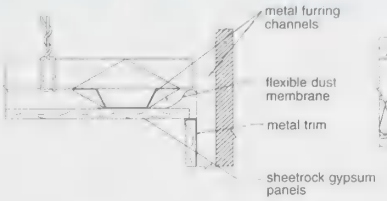


Figure 9. Perimeter relief of suspended ceiling at exterior wall.

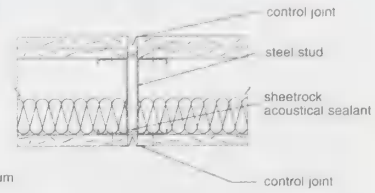


Figure 10. Control joints in the face of a drywall partition accommodate lateral expansion or contraction of up to 1/4 inch.

Fire-Rated Considerations

The introduction of a control joint into a partition or ceiling membrane that is part of a fire-rated assembly necessarily creates an opening for flame and temperature transmission. For gypsum drywall ceilings Underwriters Laboratories (UL) provides generic details for maximum one-hour floor/ceiling assemblies in the G500 and L500 series. Since typical fire tests of floor/ceiling assemblies incorporate an end joint backed with a continuous gypsum strip, the detailing for control joints in ceiling membranes for higher ratings should be acceptable to a code jurisdiction.

For gypsum partitions, details have been tested at an independent fire test facility on a two-hour partition using gypsum panel strips as back-up members in one case and mineral fiber insulation in another. The details are considered pertinent to one-hour assemblies as well (Figures 11 and 12). The development of special details to satisfy head of wall conditions is a relatively new consideration for design professionals and must be factored into the overall design as required by local codes.

FIRE-RATED PARTITION CONTROL JOINT DETAILS

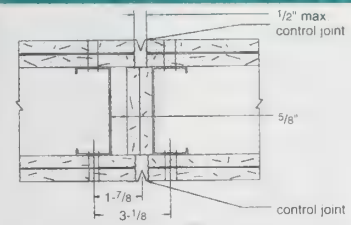


Figure 11. A two-hour fire-rated steel stud partition.

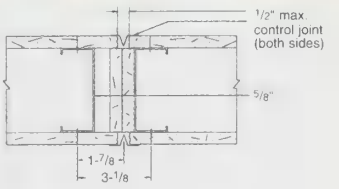


Figure 12. A one-hour fire-rated steel stud partition.

Wood Framing Considerations

In wood frame construction, the basic framing material– wood, which is subject to lumber shrinkage – is often the root cause of distress in a gypsum membrane. Gypsum surfaces do not react like wood in response to moisture changes, and thus may buckle or crack when firmly anchored across the flat grain of wide dimensional lumber. The gypsum surface should either "float" over the wood or a control joint mechanism should be provided.

Wood shrinkage is greatest in the direction of the annular growth rings (tangentially). It is less across the rings (radially) and is minimized even further along the grain (Figure 13). Using lumber in which the bearing is across the grain presents the potential for damaging shrinkage. In fact, a major contributor to wall surface damage in cathedral type installations is western or platform framing, which uses dimensional lumber up to 2 by 14 inches for floor joists at intermediate floor locations.

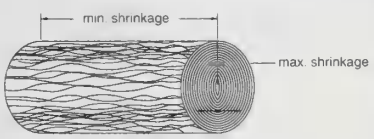


Figure 13. Wood shrinkage is greatest in the direction of the annular growth rings (tangentially), and is less across the rings (radially).

Platform framing shrinkage can be addressed through the use of resilient channels on the wood frame studs and by spanning the gypsum panels across the wood member (Figure 14). Another option is to use a control joint at the bottom edge of the top and first floor studs, which positions the joint where the greatest amount of shrinkage and dimensional change needs to be absorbed (Figure 15). The gypsum panels are then applied horizontally with a 1/4-inch separation between panels at the control joint location. The bottom gypsum panel is applied with its top edge aligned with the bottom of the top plates. One-quarter inch shims placed on the top edge provide the proper spacing. The upper gypsum panel is not nailed below the level of the toe plate allowing the edge to float over the header joist. The control joint can be finished with a manufacturer accessory or with wood molding, applied so as not to restrict movement of the gypsum panel above the joint.

USING RESILIENT CHANNELS WITH PLATFORM FRAMING



Figure 14. Platform framing with a resilient channel.

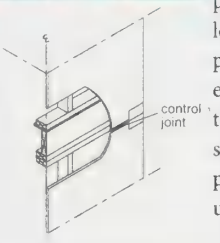


Figure 15. Platform framing with a control joint.

Seismic Considerations

In areas of earthquake activity, structures are designed and constructed to resist the lateral forces induced by seismic disturbances. Per the Uniform Building Code, drywall and gypsum plaster membrane ceilings do not require lateral bracing when they are braced by walls or partitions spaced a maximum of 50 feet apart. Where walls do not brace the ceiling, independent bracing, as designed by a structural engineer, is required. Light fixtures need to be supported independently of the ceiling runners.

While direct-hung suspended acoustical ceilings are not subject to the same stresses as continuous membranes, they are affected by seismic forces. Damage is often exhibited by battered and collapsed ceiling edges at walls and partitions, and the dropping of light fixtures. The common type of lateral bracing for suspended ceilings consists of diagonal (45 degree) wires connected between the ceiling runners and/or tees and the floor or roof structure above. The spacing of the diagonal braces is a function of the lateral force produced by the ceiling, lights, partition, etc., the load capacity of the wires and their connection to the ceiling system members and the structure above. The load brought into the brace points is a horizontal force and the wire braces are tension diagonals, resulting in a vertical uplift component to be resolved. This is usually satisfied with a vertical compression strut.

Various organizations offer additional design reports and recommendations on partitions and ceiling design under seismic conditions. The Gypsum Association addresses the issue through its Seismic Bracing of Steel Stud/Gypsum Board Partitions – Design Tables (GA-350). The California-based Drywall Information Trust Fund offers an Evaluation Report (ER-4071) on the topic. And the Ceilings and Interior Systems Construction Association (CISCA) offers reference materials on seismic criteria for acoustical ceiling systems.

In the end, controlling stress movement within a building structure requires both good design practices and proper installation techniques. The architect is responsible for understanding movement within the structure and creating the details for perimeter relief and slip connections, as well expansion joints, control joints and construction joints. When these details are designed correctly – and installed properly – movement can be effectively controlled within any structure.

Minimizing Corner Bead Cracking

Washington D.C.'s National Research Council Uses the Latest in Corner Bead Technology



Paper faced metal drywall bead is applied with joint compound instead of mechanical fasteners. It doesn't fasten directly to framing like conventional nail-on bead.

When Centex Construction completed the new headquarters building for the National Research Council in downtown Washington, D.C., in June 2002, it proved to be a fitting showcase for the work being done by the council. Founded by the National Academy of Sciences in 1916, the council's mission is to associate the broad community of science and technology, to further knowledge and to advise the federal government, the public and the scientific and engineering communities.

The 260,000-sq.-ft. project consists of 11 stories of unique, modern offices and a stunning atrium on the third floor that extends over 80 feet to a dramatic skylight in the ceiling. The Smith Group, a Washington D.C.-based architectural firm, designed the building in a grand style.

In a building dedicated to science and technology, it's fitting that a leading-edge drywall technology played a key role in the construction of the building's interior walls. Interiors subcontractor C.J. Coakley Co., Inc. managed to virtually eliminate any potential for corner-edge cracking – and the associated callbacks – in the building through the use of an innovative corner bead that offers the unique ability to "move" with drywall surfaces, providing the flexibility needed to withstand structural shifting and settling.

"This is one of the best technology breakthroughs in drywall finishing in a long time," said Michael Coakley, senior project manager and part owner. "We love it."

Coming from Coakley, that statement carries a lot of weight. His company has been completing interiors on some of the biggest and most prestigious projects in the Washington, D.C. area since 1962. Based in Falls Church, Virginia, C.J. Coakley's 480 employees handle approximately $35 million in interiors work annually. Over the past four decades, the company has completed drywall, plaster, fireproofing and acoustical ceiling applications on everything from Dulles International Airport to Fed Ex Field, from the Dirksen Federal Building to the Pentagon. C.J. Coakley has also completed hundreds of lesser-known commercial projects, including local hotels, hospitals, universities and shopping malls.



Paper faced metal bead applied over a gypsum board corner.

The corner bead that C.J. Coakley raves about is known as paper faced metal drywall corner bead. C.J. Coakley began using the product in 1998 during renovation work on the Pentagon.

"We had been using conventional metal clinch bead until that time," said Coakley. "But on the Pentagon project, we decided to try the paper faced metal product. It handled really well and we realized a cost savings. We've never turned back. We now use paper faced metal bead for a significant part of our drywall work."

So what's the attraction behind the product's performance? "For one, we don't find that we have to go through jobs fixing up damaged corner beads with this product," said Coakley.

The key to the product's performance lies in the fact that tape-on paper faced metal bead is not fastened directly to framing. Rather, it is attached to gypsum board corners using joint compound applied under the paper flanges that extend from the metal corners. This gives the product the flexibility to withstand cracking resulting from normal building movement. It also delivers superior strength and impact resistance.

"If you hit a paper faced metal corner, it won't crack all the way up and down the wall like conventional metal bead will," said Coakley. "The damage will only be at the point of impact. And it's much harder to damage because it's so much stronger."



Drywall corners treated with paper faced bead "float" with the gypsum board surface, providing the flexibility needed to withstand structural shifting and wood frame shrinkage without cracking.

Coakley also points out that the product installs more quickly than conventional metal clinched-on bead. It cuts easily with tin snips, and can be quickly applied using joint compound and either a 4- or 6-inch taping knife, a multiuse hopper and corner roller, or a mechanical angle applicator.

C.J. Coakley crews installed more than 90 boxes of paper faced metal drywall corner bead on the National Research Council building. To begin the application, workers generously applied ready-mixed joint compound to both sides of the corners, extending 2 inches wide on each side. Once cut to the desired length, the paper faced metal bead was aligned to the corner and pressed firmly along its length. Excess joint compound was then removed using a drywall knife. The paper faced metal bead was then finished with two coats of ready-mixed joint compound applied over the paper flanges.

Alternatively, the paper faced metal bead can be run through a gravity-fed hopper to spread a layer of joint compound over the inner surfaces of the paper flanges. The bead is applied to the corner and pressed into position using the roller tool. A mechanical angle applicator can also be used to apply joint compound directly to corners. The bead is then simply pressed in place and wiped clean with a rag or drywall knife.

"Although the paper faced metal bead costs a couple of cents more per foot than regular bead, you don't put as much mud on the walls when applying it, you don't have to hit it as many times and you eliminate one pass on the finishing," said Coakley. "So, the amount of material you are using and the actual finishing time is less. When you add those factors in, you're actually saving money."

Compared to the bare metal or plastic surfaces of conventional corner bead, the paper tape provides superior adhesion of joint compounds, textures and paints, ensuring a strong, smooth finish. "It goes on a lot straighter than the typical metal bead. When you install metal bead, you're crimping it on the surface and you inevitably kink the bead, and often, installers won't fill it in just right," said Coakley. "So if you have a bulkhead that you're running down a line, you'll see it run in and out. Whereas the paper faced metal bead will stay straight and true."

The paper faced metal bead's superior performance also minimizes—and sometimes eliminates—subsequent repairs.

Getting workers to try a new product is often the hardest part. "It's sometimes hard to get our guys to switch to a new product when they've been using an established product for a long time, even if the product is superior," said Coakley. "When we started this project, we gave our workers five boxes of traditional bead and five boxes of the paper faced metal drywall bead to use. Many of them initially went for the first box of traditional bead. Once the traditional beads were used up, the men were forced to use the paper bead. When we replaced the order for bead, the men went with paper faced bead. Once they tried the paper faced metal bead, they never went back. They had all become converts." ■

Click for Additional Required Reading

As part of this CES learning activity, you are required to read some additional material. Some of the test questions below will relate to the additional reading material. Go to www.architecturalrecord.com/CONTEDUC/ConteducC.asp to access the material online. To obtain a faxed copy, contact Marty Duffy at 312-606-5781 or mduffy@usg.com.

Learning Objectives

At the end of this article you will be able to:

- Control structural movement through design.
- Know proper installation techniques for control joints.
- Understand how drywall corner edge cracking can be minimized and how cracked plaster walls and ceilings can be repaired.

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 244. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*architecturalrecord.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

Q: 1. Which is seasonally affected by thermal expansion and contraction since the stress reverses with prolonged changes in outside temperature?
A: a. Cracks due to racking stress
b. Cracking resulting from flexural tension

Q: 2. The amount of anticipated slab deflection can be calculated based on the initial dead load, with compensating partition and ceiling details providing for an amount ranging from _____ times the initial dead load deflection.
A: a. One to three times
b. Two to five times
c. Five to seven times

Q: 3. Distress problems are usually most serious in which situations?
A: a. When partition membranes are supported by a suspension system
b. When partition membranes are abutted to the structure

Q: 4. Initial and creep deflection can be reduced with a stiffer floor system or with a pan-joist structure and suspended ceiling.
A: a. True
b. False

Q: 5. Expansion joints are needed in all situations except which?
A: a. When interior and exterior temperatures are extreme
b. When a new building adjoins an existing building
c. At the ends of a low structure between two heavy masses
d. At perimeter interfacings in flat plate construction

Q: 6. You generally find which control joints at ledges or other architectural features such as windows, jambs, heads and sills?:
A: a. Expansion joints
b. Construction joints
c. Perimeter relief joints
d. Slip joints

Q: 7. For the proper installation on ceilings, the framing at control joint locations should not be broken.
A: a. True
b. False

Q: 8. While ceiling-height door frames may be used as vertical control joints in partitions, frames of lesser height require:
A: a. A ratio of 1:1 for door height to width in ceiling membranes
b. Expansion joints extending through the footing, foundations, and ceiling.
c. Control joints extending to the ceiling structure from both corners of the top of the frame

Q: 9. Generally speaking, control joints should be used in all but which of the following:
A: a. Where a ceiling or soffit abuts a structural element, dissimilar wall or partition, or other vertical penetration
b. Where construction changes within the plane of the partition or ceiling
c. In any ceiling space less than 30 by 30 feet
d. Where wings of L, U, and T-shaped ceiling areas are joined

Q: 10. Gypsum surfaces may buckle or crack when:
A: a. Firmly anchored across the grain of lumbar
b. Provided with a control joint mechanism
c. They "float" over the wood
d. Used with resilient channels on the wood frame studs

Q: 11. Drywall and gypsum plaster membrane ceilings do not require lateral bracing when they are braced by walls or partitions spaced a maximum of 50 feet apart.
A: a. True
b. False

Q: 12. When the relative humidity increases from 13 percent to 90 percent, gypsum panels can expand at a rate of approximately:
A: a. 1/4 inch per 100 feet
b. 1/3 inch per 100 feet
c. 1/2 inch per 100 feet
d. 2/3 inch per 100 feet

Q: 13. Benefits of paper faced metal drywall corner bead include all but which:
A: a. Flexibility to withstand cracking
b. Costs less per foot than regular bead
c. Harder to damage
d. Installs more quickly

About USG

USG Corporation is a Fortune 500 company with subsidiaries that are market leaders in their key product groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling tile and grid; and building products distribution. The company received the 2001 AIA/CES Award for Excellence for its commitment to providing quality continuing education programs.

United States Gypsum Company, a subsidiary of USG Corporation, manufacturers SHEETROCK® Brand Gypsum Panels, the leading and best-known brand of drywall in the United States, as well as a variety of plaster and veneer plaster products.

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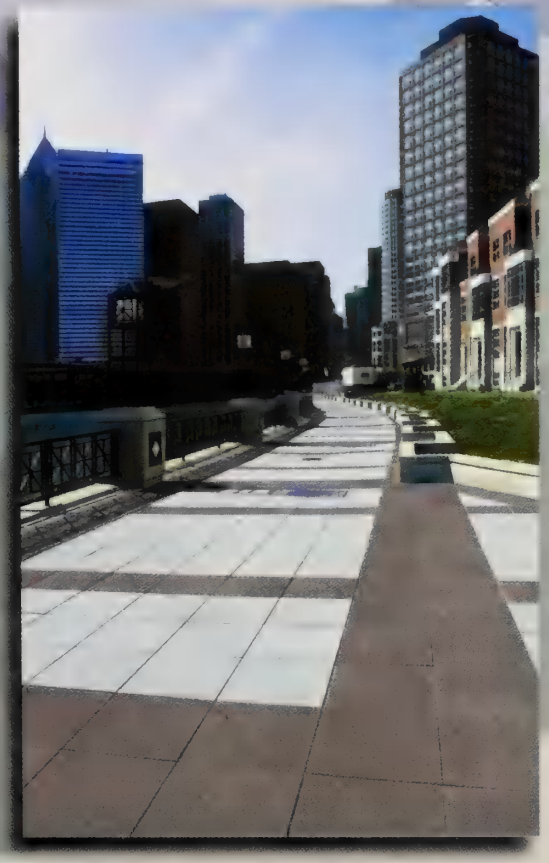
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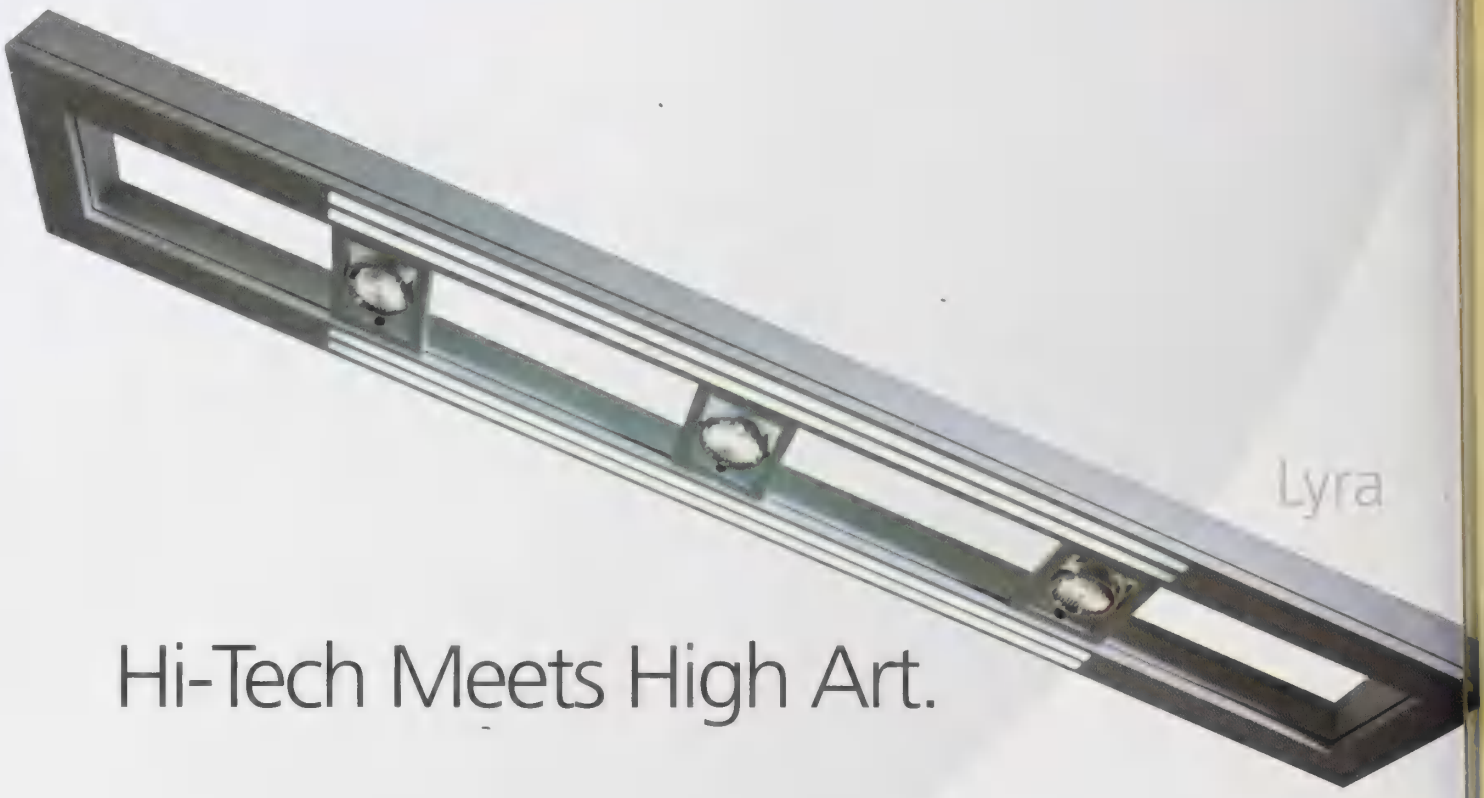
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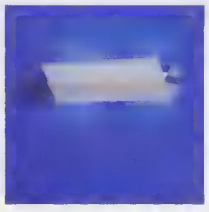
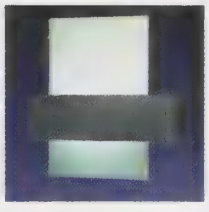
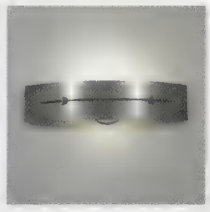
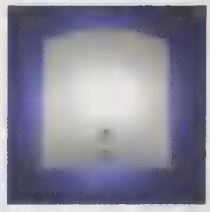
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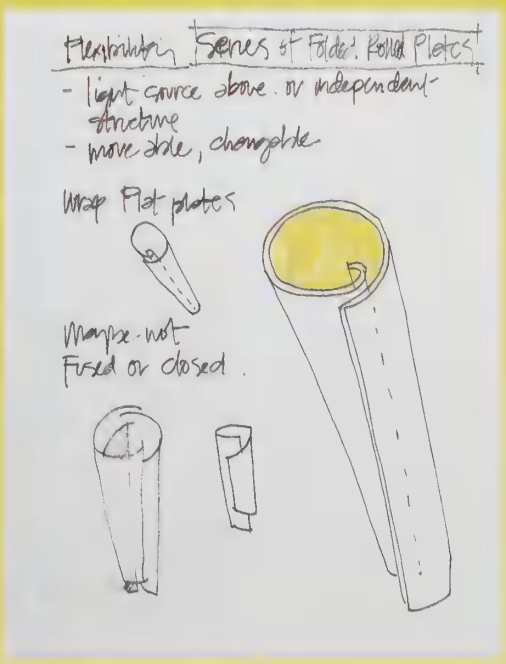
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LIGHTING

From mind's eye to glass artisan's kiln: Architects creatively leap toward the light

Commissioned by the Bullseye Glass Company and its sister showcase, the Bullseye Connection Gallery, seven architecture firms in Portland, Oregon, were invited to take creative leaps toward the light: design a chandelier adhering to few ground rules other than the use of glass. The residency program continued a tradition that has brought other creative artists—including printmakers, sculptors, ceramicists, and painters—to the company's facilities over the years to explore the glass artisan's realm.



Many of the architects arrived with fantastical sketches and new trajectories toward the 2,500-year-old medium. "The glass-working methods required to execute the architects' visions demanded a creative stretch that outdistanced anything we'd done before," says Connection executive director Lani McGregor. "Glass was cast, fused, slumped, hotworked, drilled, and blasted in ways that even our most practiced technicians could not have imagined. The architects and studio team worked side by side and demonstrated a graciousness and endurance, despite challenges that probably made them feel as twisted, overheated, and deformed as the chandeliers seemed at times."

One design (rendering, left), by a team from the architecture firm DECA, led Bullseye technicians to invent a patterning system and seven-step molding process to achieve the long, slender, semicircular forms that make up the "Fire and Ice" chandelier. A technician said of the challenge, "The architects knew what they wanted and kept pushing and pushing. We would tell them we would never slump glass in a certain way, but they wouldn't take no for an answer."

The chandeliers, exhibited in a Connection show called *Multiplied Light*, demonstrate the creative calculus factoring in form, function, craft, light, and the architect's inimitable search for new formulas. *William Weathersby, Jr.*

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Bullseye Connection Gallery; various Portland architects

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L I G H
S P A C

Creative Uses

Meeting the lighting requirements of the modern library without showing it

As the needs of library users have evolved due to the changes in the way information is stored and used, libraries have also changed. Downtown Berkeley, California's Public Library, designed by Berkeley architect John Plachek in 1931, is one of the latest to be renovated. It reopened last year after being upgraded. A new addition has expanded the building from 30,000 to 100,000 square feet.

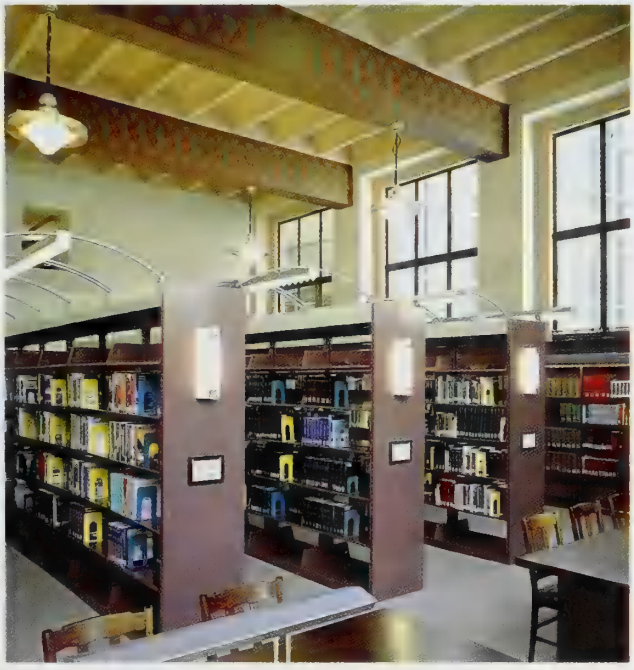
Cynthia Ripley, AIA, and Eric Cugnart, of Ripley/BOORA, a joint venture, worked with San Francisco lighting designer David Malman of Architectural Lighting Design. Together they developed a lighting strategy that would be responsive to the different programmatic requirements of both the building's new and historic spaces. Their solution had to meet a tight budget and comply with California's strict energy requirements. The library's period reading room, lobby, and reference room had been illuminated with pendants that were removed over the years and lost. The architects decided to recreate them using photographs taken when the building was new as a guide. It was not possible to tell exactly what materials the pendants were made of from these black-and-white photos, so the designers relied on a palette of materials found elsewhere in the building: brass, aluminum, and bronze.

Using the pendants to provide all of the light for the reading rooms would have caused excessive glare, so these recreated fixtures only add about 10 footcandles to the space. Their lower portions contain four 26-watt, 2,700-degrees Kelvin compact fluorescent lamps. They also each conceal four PAR20 uplights used to wash the newly restored decorative ceiling. Stacks were illuminated with custom-made fluorescent fixtures suspended from arches that span the aisles between each row of shelves. To ensure that the T8 lamps put enough light on the books' spines, a reflector and louver combination was chosen that provides a strong, vertically oriented light distribution.

Fluorescent task lighting using T5 lamps illuminates the 12-foot-long reading tables. The pendants, stack lighting, and table lamps were manufactured by Shaper Lighting. The 50- to 60-footcandle light levels provided by the system are slightly low by modern standards, but the library staff agrees that these light levels are in keeping with the "old-fashioned" quality of the space.

Much of the lighting in the library's new addition is provided by uplights manufactured by Rambusch. Brushed chrome details were applied to them so that they share a familial resemblance to the recreated fixtures found in the original spaces. *Charles Linn, FAIA*







Uplights punctuate columns (top) just inside the entry of the Berkeley Public Library. In the main reading room, new lighting was installed over stacks (above left) and on stack end panels. Old pendants were recreated (above).

MTV Online heads downtown from Times Square, bringing along playful lighting and architectural forms

By Leanne B. French

Carson Daly's glass-fronted studio overlooking Times Square has made the telegenic headquarters of MTV as identifiable as the popular television host is himself. While the music channel's base remains firmly rooted at Broadway and 43rd Street, its Internet division has established its own beachhead farther downtown on Broadway, with a move to a 145,000-square-foot outpost in the East Village.

"Fast, fun, flexible, and inexpensive" were the client mandates for the design and build-out. Architects Laszlo Kiss and Todd Zwigard collaborated with Barbara Horton and Doug Russell of Horton Lees Brogden Lighting Design on illumination that appears playful yet polished, complementing similarly spirited architectural forms. Lighting also helps to differentiate work areas of the edgy music division from adjacent spaces occupied by its child-oriented corporate sister, Nickelodeon (though the office complex carries the umbrella name MTV Online). Working with a tight budget and construction schedule "required us to creatively use readily available, rudimentary lamps and fixtures," Russell says.

"Essentially, the lobby is a neutral zone connecting the two sides—the music group versus the children's creative sector—where we wanted to make a strong visual impact," Kiss says. Within the double-height space, a reception desk bisects a towering inverted cone. Sheathed in translucent fiberglass, the structure is illuminated from within by halogen striplights.

Placed above the lobby elevators, fluorescent strips gelled with alternating blue and gray sleeves create a moody glow. Ambient lighting levels remain low enough for company logos to shine, projected as accents. On either side of the main ninth-floor corridor, the music and kids' divisions take on divergent personalities yet share an open-plan format enhanced with employee-controlled lighting schemes.

"At some of MTV's previous offices, employees would tape cardboard to fixtures to keep light levels low," Russell says. "Here, it became a question of how to control lighting on a more personalized level."

The "democratic" plan features 140-foot-long stretches of back-to-back office banks and workrooms that each accommodate three, five, or eight employees. Lighting is equally democratic, yet adjustable. Energy-



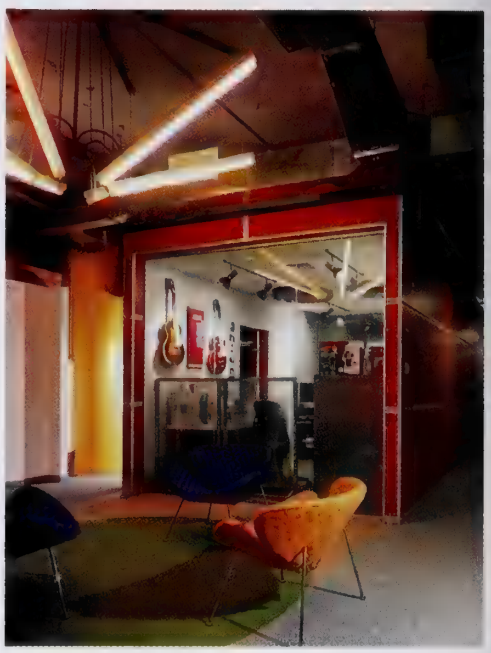
Leanne B. French is a freelance writer based in New York City who specializes in architecture and entertainment design.

Project: *MTV Online, New York City*
Architect: *Kiss + Zwigard Architects—Laszlo Kiss, Todd Zwigard, principals*
Lighting designer: *Horton Lees Brogden Lighting Design—Barbara Horton, IALD, senior principal; Doug Russell, associate*
Electrical engineer: *Edwards and Zuck*
General contractor: *Lehr Construction*
Electrical contractor: *Forest Electric*



Halogens backlight the translucent fiberglass cladding of the conical reception tower. Stock lighting components work with colorful architectural forms for an updated industrial ambience (opposite).





Track halogens light the curved wave that wraps one of the meeting pods at MTV Online (left). Pinwheels of suspended linear fluorescents put a playful spin on stock fixtures in the music division offices (above).

efficient, glare-free fluorescent systems allow employees in each office to control light levels, as well as either direct or indirect distribution.

An abstract, urban industrial aesthetic suits the music division. Thick plaster columns, remnants from the building's former life as Wanamaker's Department Store, are left exposed as found objects. To enclose offices, aluminum-framed glass "storefronts" are wrapped with translucent fabric to provide a level of privacy without making each 9-by-10-foot space seem claustrophobic. Partitions measure either 5 or 7 feet high to separate workrooms and are reinforced by exposed V-shaped studs that stretch to the ceiling to create a visual rhythm within the open plan. Custom fixtures on top of the partitions provide general illumination. Original terra-cotta ceiling tiles are painted a monochromatic white.

The Nickelodeon offices feature a more literal-minded village design, with house-facade office enclosures and "garden" workrooms. Abstract tree shapes constructed of translucent green acrylic are mounted on the vertical metal studs that suspend workroom partitions. A whimsical pantry area has its own artificial swimming pool, Adirondack chairs, and festive paper lanterns. A breakout room called "the factory" is clad with red chalkboard panels framed by aluminum joints to mimic a brick pattern. Smokestacks made from perforated sheet metal cylinders are lit from within by silver bowl lamps that also provide ambient lighting.

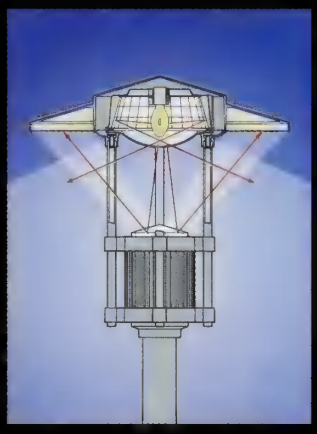
While the ninth floor was built-out from an unoccupied space, the tenth floor adapted some elements left in place from a former banking office. Upstairs, the music and children's themes are continued in a simplified manner, with an emphasis on a new visual richness. To aid orientation, walls and flooring are color-coded for varied sectors. Fluorescent striplights provide ambient illumination in hallways. Functioning as impromptu meeting spaces, covelike lounges have curved walls that wrap around in one continuous wave. Lit with halogen accent fixtures, the pods are equipped with TVs and plug-ins for computers. ■

Sources

Fluorescent pendants, recessed and track lighting: *Lightolier*
Cove lighting: *Belfer Lighting*
Fluorescent strips: *Legion Lighting*
Porcelain sockets: *Leviton*
RLM fixtures: *Exceline*
Low-voltage accents: *Tech Lighting*
Custom accents: *Luminary Tools*
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Grid meets glass: Seven Portland architects explore the limits of fabrication with chandelier designs

By Sheri Olson, AIA

Glass has played a central role in architecture since the Crystal Palace, but architects have not often had the chance to directly explore the material as a harness for architectural lighting. A project commissioned by the Bullseye Glass Company and its affiliated gallery in Portland, Oregon, recently allowed seven of the city's architectural firms to forge the connection between sketches on paper and completed chandeliers. Like kids in a candy store, the architects were given free reign with the company's product line, technicians, and Portland facilities. Their task: produce a chandelier. There were no budget limitations, and initial deadlines came and went over the course of two years as the design teams struggled to realize their fanciful ideas in glass. After chewing through 2,000 pounds of glass and running the technical department ragged, the chandeliers ranged from bombastic one-of-a-kind art pieces to a market-ready fixture now hanging in a municipal train station. All designs pushed the limits of the craft.

Bullseye, a manufacturer of colored sheet glass primarily used by artists, was the first to develop tested compatible glasses that allow crossover between kilnwork, blowing, and torchwork. For 20 years the company has sponsored in-house residencies to introduce nonglass artists to its process, but this was Bullseye's first experience collaborating directly with architects. Randy Gragg, architecture critic of Portland's *The Oregonian*, selected the participants and curated the show.

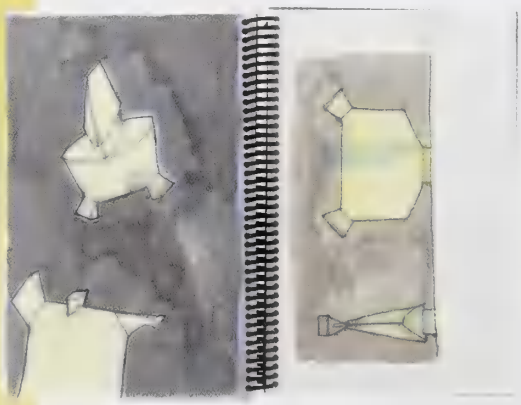
Bullseye does not have facilities to blow glass, a limitation that added a twist to lighting design, as most glass for commercial and industrial applications is blown—for precision and scale—rather than cast. Experimentation was fostered, since the architects, while not skilled at glass blowing, could personally participate with technicians in fusing, slumping, and casting glass.

James Harrison of the former art and architecture collective RIGGA discovered that "steel is like a dog, glass is like a cat," referring to the obedient nature of the first material and the fickleness of the latter. His dense, multifaceted cast-glass pieces (which he calls "clots of congealed light") required trial and error to arrive at the exact time required in the annealing ovens. "If glass is not evenly cooled, it's likely to break," explains Ted Sawyer, head of research and education at Bullseye. The pieces were cast using the lost-wax method, then sandblasted, acid etched, cold ground, and rubbed with oil of frankincense. Each element was hung by black hemp from a ceiling-mounted steel pipe housing an MR-16 lamp.

Many participants quickly ran afoul with their misconceptions about glass. "We thought of glass as a molten liquid that we could mold

RECORD *contributing editor Sheri Olson, AIA, is author of* Miller/Hull *(2001) and architecture columnist for the* Seattle Post-Intelligencer.







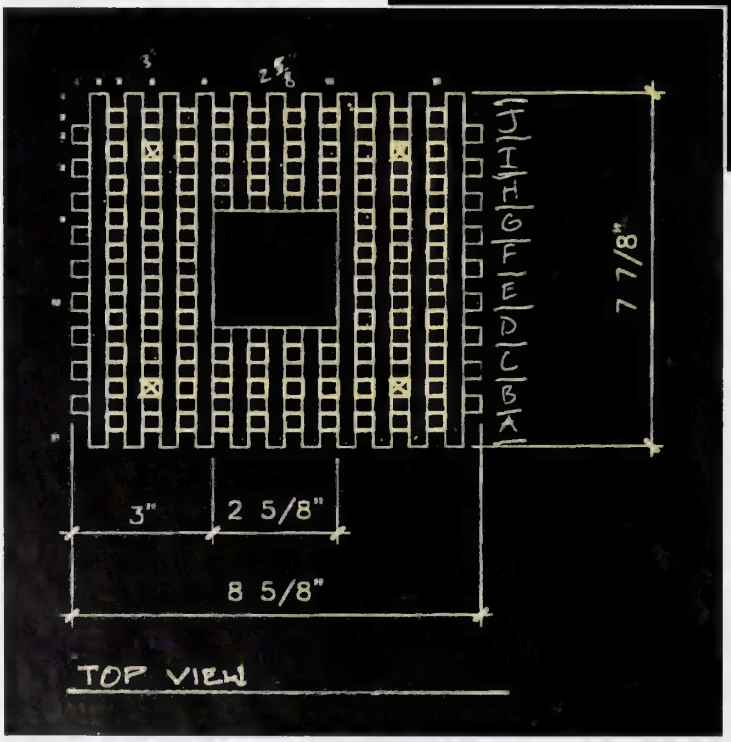
James Harrison, then part of the now-defunct collective RIGGA, sketched free forms that were "stinky, gooey, and old-looking, a wad of glass to put on a pike." Hung by black hemp and rubbed with oil of frankincense, the pieces have the look of "Parma hams," he says.



Stan Boles of BOORA Architects was inspired by a NASA photo of an exploding star taken by the Hubble telescope. His team's sketch (inset) sparked exploration of some 200 glass types and fusing techniques to achieve the right molten coloration.



Perhaps the most rigorous and rational of the chandelier designs, Thomas Hacker's fixture was actually inspired by the ephemeral: the refractions of light through the ice crystals of a cloud seen from the window of an airplane. Its cubic structure is half open, half solid.



like plastic, but we soon realized it has its limits," says Kim Wilson of Holst Architecture. The firm's first designs were complex organic shapes easily achieved with blown glass but impossible to slump. In the end, their chandelier came closest to the planar qualities of the sheet glass material while pushing the limit on how tight a corner it can slump. Each luminaire Holst made had two interlocking cast-glass pieces (one clear and smooth, the other opaque and matte) wrapped around two 10-watt xenon low-voltage lamps mounted on a steel channel frame.

Architect Richard Potestio employed glass rods in an atypical way. Usually worked and shaped with a small torch, the 2-millimeter rods were randomly thrown into the kiln in layers to create cotton-candylike sheets of fused glass. "I was after that burst of light where the rods intersect," he says. The glass was cut into swaths and slumped in spirals over a plaster mold based on the shape of a stainless-steel armature. The finished glass was held by wires 2 inches off the 6-foot-long armature and raked by a single external MR-16 lamp to play up its crystalline qualities.

DECA also chose not to integrate a light source in its chandelier—a cluster of 34 multicolored, fused and slumped glass cylinders. "We liked how an external light source bounced off the glass's slight imperfections," says principal Sallee Humphrey. Ninety percent of the labor lay



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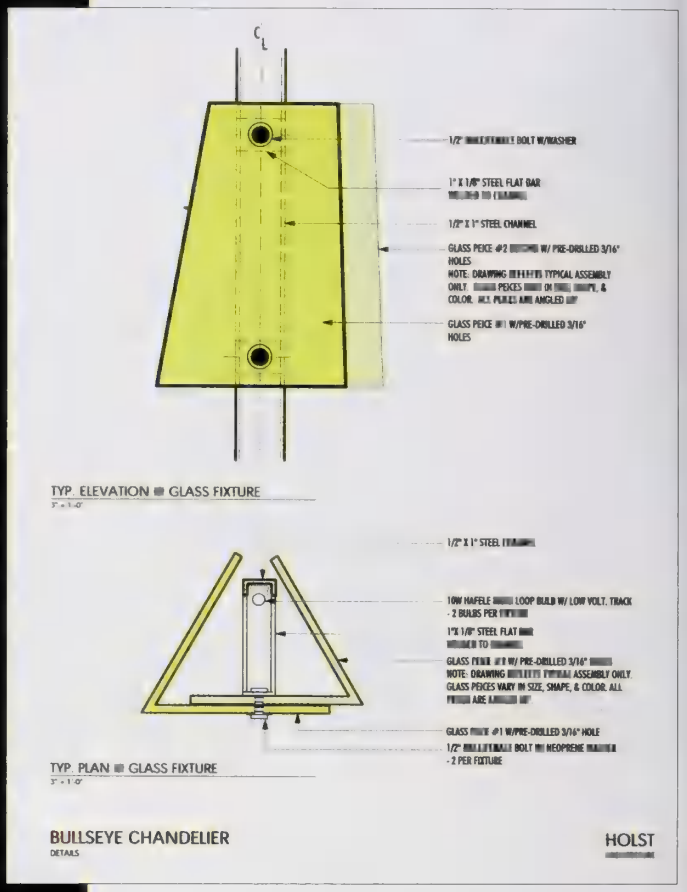
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The team from Holst initially developed organic shapes based on Grecian urns. After slumping glass themselves, the designers shaped fixtures (left and below) that feature overlapping folds, "peeled and split."



For Richard Potestio, the project was a way to engage in "experimental creation versus the dogmatic creation architecture so often is," he says. Creating the "Chrysalis" chandelier (right) helped him to continue his exploration of "suggested enclosure in the Platonic form of glass."



in developing a series of 2- to 3-foot-long, hull-like forms made of wood strips. By varying the length of the sheet of fused glass and the section of the mold it is slumped over, a variety of sizes and shapes were possible.

Greg Baldwin, ZGF Partnership principal, was the only architect to approach the project as a prototype; now six of his firm's fixtures hang in Everett Station, a transportation center in Everett, Washington. The design was technically challenging due to the precision and scale of the fixture's three components: a 42-inch-diameter outer bowl of slumped glass; a reverse-curve, slumped-glass middle; and a blown glass center (fabricated by an outside facility) cradling an incandescent lamp. Baldwin provided calculations and detailed drawings of the fixture's superstructure to Keller House, a company licensed to give the chandelier a UL rating.

Thomas Hacker's matrixlike design began with a 100-watt lamp and his desire to approximate the way light expands as it passes through ice crystals in a cloud. In his experiment, glass bars were stacked, then glued together using a special epoxy catalyzed by infrared light. Four steel cables threaded through the grid of glass to stainless-steel plates on the bottom, and an incandescent bulb rested inside.

In contrast to Hacker's Minimalism, Stan Boles, BOORA Architects principal, created a 13-by-9-foot chandelier inspired by a

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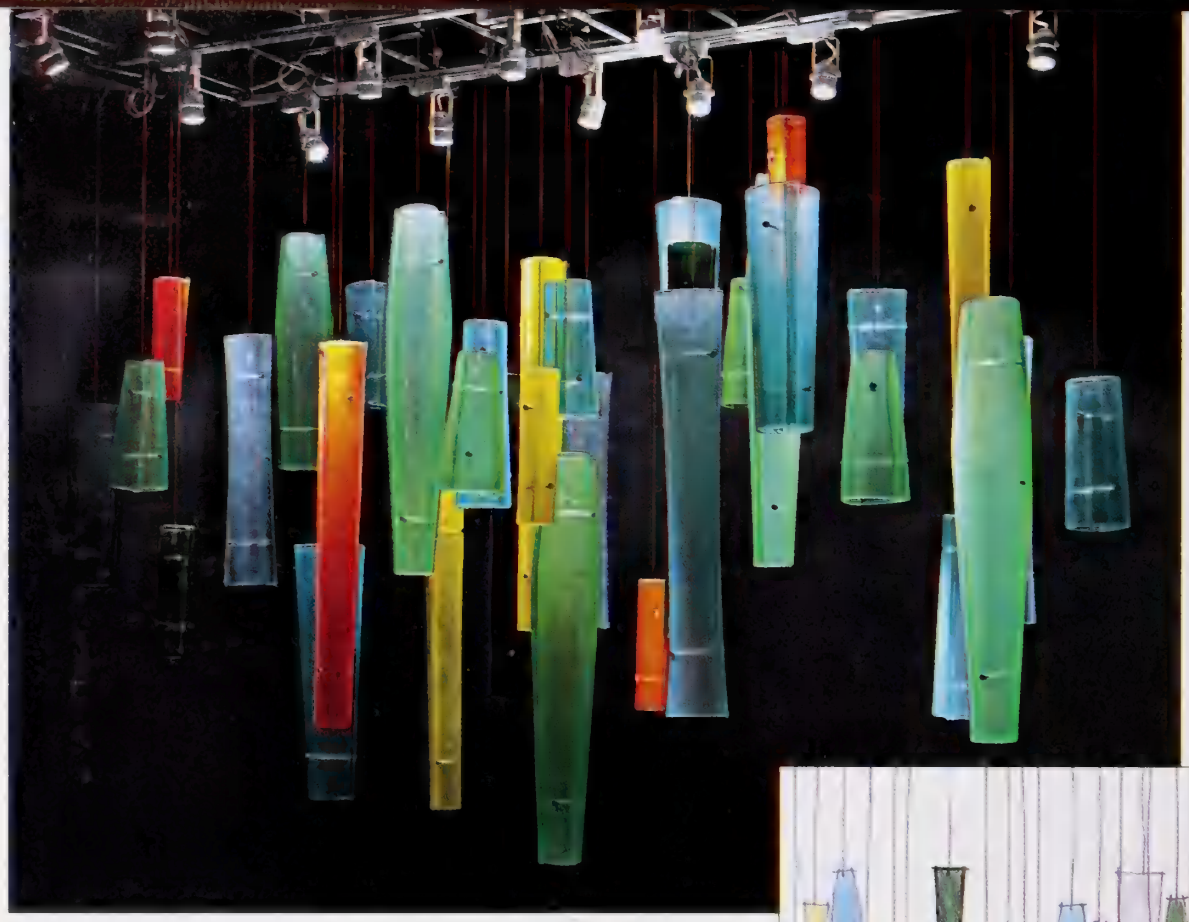
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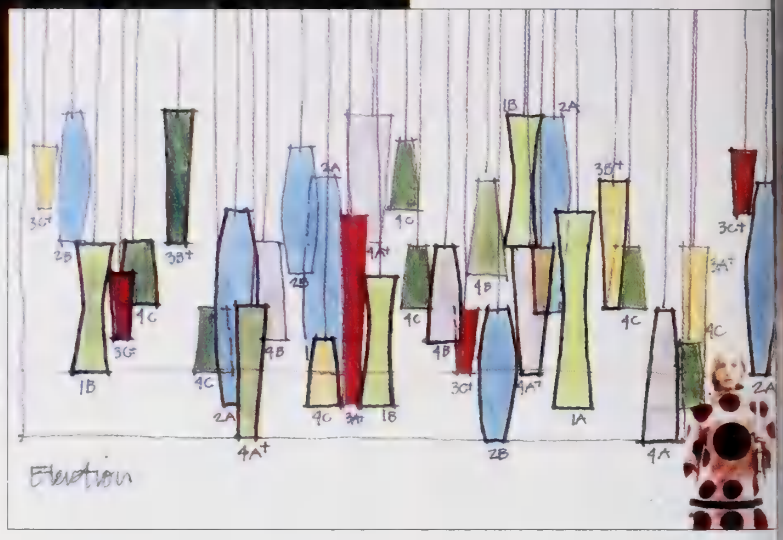
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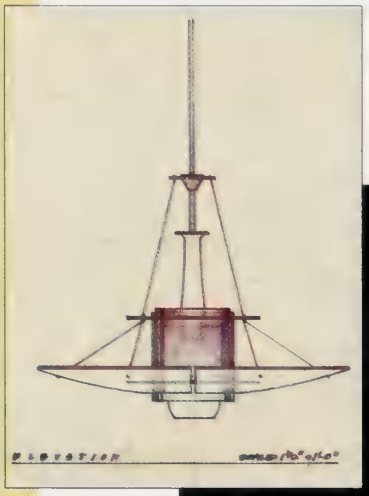
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Bullseye technicians fused two different colors of sheet glass together in various combinations to create hundreds of samples from which the architects of DECA could choose. Toplit by metal halides, the iridescent glass elements create a chromatic effect (left and below).





ZGF Partnership designed a site-specific fixture (left and below) for the multilevel Everett Station "so that the glass reads as structure," says architect Greg Baldwin.



NASA photo of an exploding star. To match the color of the dying star, he chose the most expensive material, glass colored with the rare earth element praseodymium, a natural dichroic. A new technique of heating and slumping the glass outside a kiln was used to create the 167 irregular concave tiles attached to an aluminum frame. Inside, two metal-halide and two halogen lights altered the glass surface from dark red to light green.

Bullseye deemed the project a success (an auction of the chandeliers raised $35,000 for the Portland Institute of Contemporary Art) and plans to do it again, but "within a budget next time," says executive director Lani McGregor. Several architects are incorporating glass in plans for current projects, which they might not have considered before, they say. "Now we know the sources and process and have connections with experts; it was a wonderful opportunity to experiment," Humphrey says. ■

Project: *"Multiplied Light," The Bullseye Connection Gallery, Portland, Oregon*
Architects: *BOORA; DECA; Thomas Hacker Architects; Holst; RIGGA; Potestio Architect; ZGF Partnership*
Fabrication: *Bullseye Glass Company*

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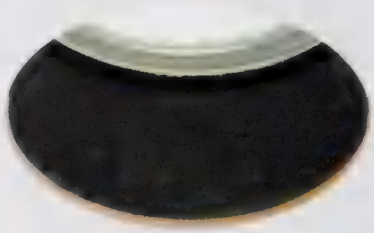
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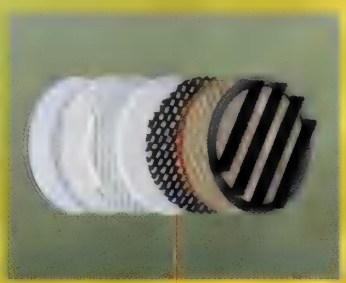
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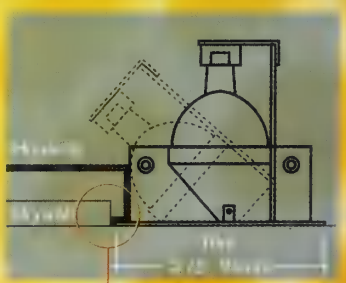




Tuneable effects — trim holds three lenses/louvers/filters

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Recessed trim — absolutely flush with ceiling

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LUCIFER LIGHTING COMPANY

Cascading light boxes juxtaposed with mirrored surfaces raise the curtain on drama at Miami's Rumi supper club

By William Weathersby, Jr.

Like moths to a flame, people are attracted to light," says architect and lighting designer Scott Kester. With partner Nancy Mah, he has perfected the sophisticated balance of darkness and illumination at restaurants and clubs that seems to draw the heat-seeking genera known as "night crawler" and "social butterfly." At hip New York nightspots Sushi Samba and Lotus [RECORD, September 2000, page 199], the duo has orchestrated lighting, textural materials, perspective, and scale to establish rooms brimming with exotic ambience.

Adapting their flair for Miami's South Beach nightlife culture, Mah and Kester recently designed the supper club Rumi. Named for the 13th-century mystic Jalal ad-Din ar-Rumi (an obscure reference perhaps lost on patrons even after they hear his poetry read by Madonna over bathroom speakers), the long, narrow space might be dubbed "rumba meets retro." Caribbean-inflected vernacular details include resin tabletops inlaid with crab shell, ebonized-mahogany and goatskin bar tops, and basket-weave panels formed from shards of coconut shell. Yet a midcentury Modern aesthetic overlays the space: Low, curvaceous banquettes, walls clad with faceted mirrors, and a palette steeped in gold, navy, oxblood, chocolate brown, and copper recall the beach resort's golden age.

"With Rumi we wanted to bring back the lost elegance of nightclubs and ocean liners of the '30s and '40s," Mah says. "Our inspiration came from French designers of that period, but updated with modern fabrication techniques." Adds Kester, "We rely on custom interior finishes and furnishings for every project. It is a parts and assembly approach, with custom tables, lighting, banquettes, wall screens, every element working together." At Rumi, for example, adjustable silk-screened tabletops are lowered from dining- to cocktail-table height as the evening progresses, while mezzanine banquettes feature integral sconces punctuating the fabric upholstery.

Alumni of the Rockwell Group in New York, where they worked on a variety of restaurant projects before launching their own studio, Mah and Kester are well versed in lighting techniques that can spark liveliness in dining spaces. Trained in architecture and art history, Kester developed a special interest in lighting fabrication and design and leads most of the firm's lighting projects. "The contrast between light and dark plays a crucial role in the use of color and how a restaurant is defined," he says. Mah, who studied design at Parsons but honed her craft largely on the job within the cross-pollinated worlds of restaurants, events planning, and museums, notes that "Rumi is an environment experienced only at night, so light levels remain low and are meant to flatter. Throughout, shiny surfaces and rounded corners catch the light."

The dimensions of the Rumi building, formerly a storefront backed by a warehouse on Lincoln Road, sent Mah's thoughts sailing back amid the romance of classic ocean liners. Approximately 140 feet long by 17 feet wide (a bit broader at

Project: *Rumi, Miami*
Architect, interior and lighting designer: *Nancy Mah Design—Nancy Mah, Scott Kester, principals*



Lit by incandescents, the light boxes are suspended by aircraft cables threaded through them, creating staggered levels of illumination.

Contributing editor William Weathersby, Jr., edits the lighting and interiors sections for RECORD. He lives in Westport, Conn.

Striplights graze the textured-brick wall and tile bar front near the entrance (left). Upstairs (right), sconces built into banquettes glow beneath the illuminated ceiling.





22 feet wide on the mezzanine level), with a height of 24 feet, "the space had a verticality and length that called out for emphasis," Mah says.

The centerpiece of the main dining room is a cascading Modernist chandelier that fills the length of the space. Elegantly sculptural, like a mobile grazed by moonlight, the chandelier is the "Big Design Move," Kester says. Patrons who proceed from the front bar at the entrance are dazzled by the layers of light emanating from the 15 light boxes ascending through the air. Meanwhile, people seated on the mezzanine have a dramatic bird's-eye view of the light sculpture aimed at alleviating any feeling of social banishment from the main floor. Areas to the side of the main room, plus a 5-foot-tall, blacked-out void above the chandelier, are kept relatively dark to create "an arena effect, with a focal point in the center and light fading as you move away," Kester says.

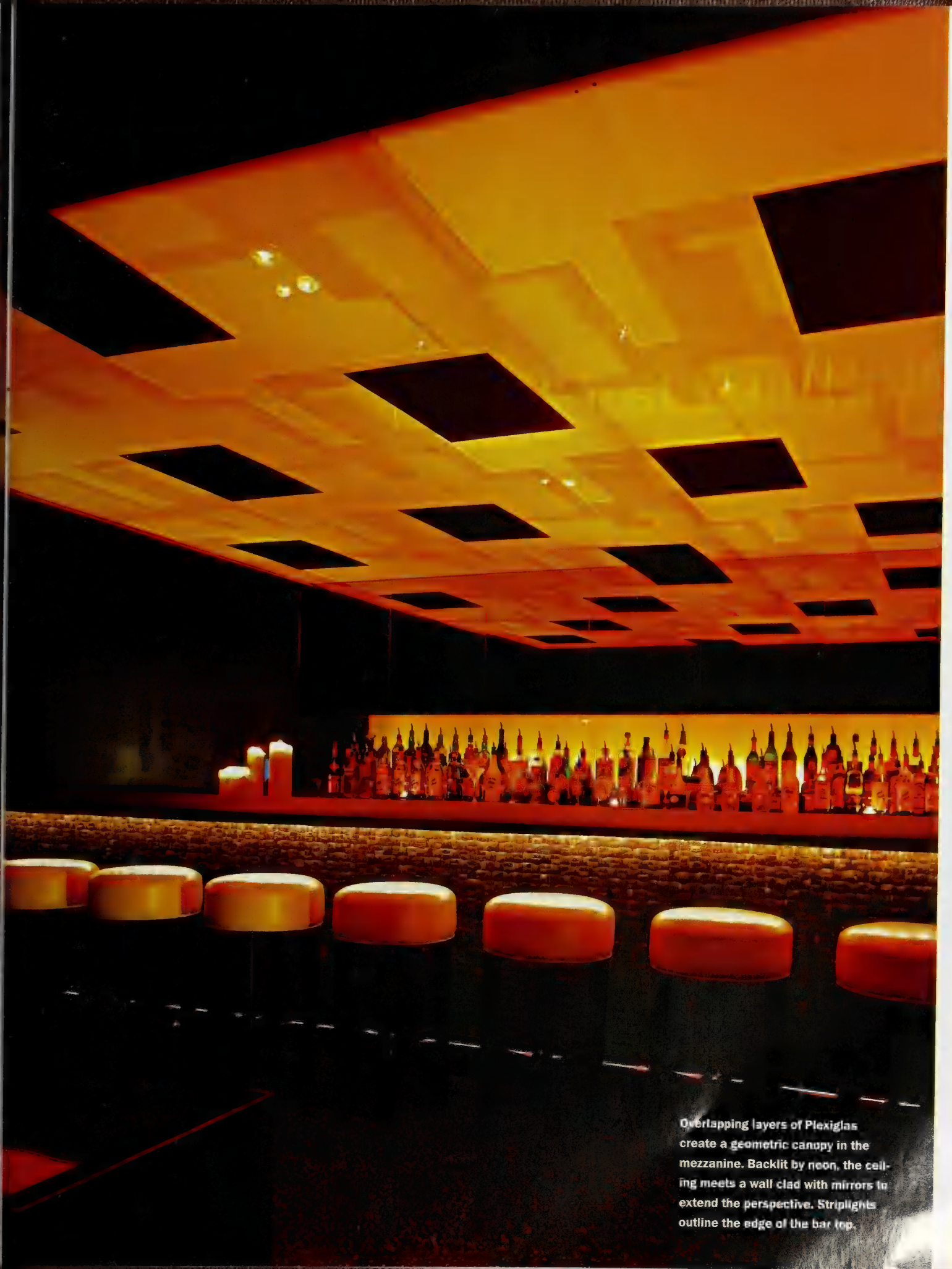
Mirrored surfaces on the wall behind the chandelier and along part of the ceiling create the illusion that the light boxes extend within a more expansive volume. The smoky, mirrored panels randomly alternate between dark gray, bronze, and blue tints to vary reflections and depth.

Technically speaking, the chandelier takes low-tech toward high style. "The materials are stock items used in a different way," Kester says. "With custom specifications, it's easier for on-site contractors and fabricators to understand how simple components go together." Each light box is a curved wedge of Plexiglas measuring 36 inches square with a depth of 10 inches. With three incandescent lamps per box, the units are each suspended by three aircraft cables, which thread through the staggered layers of boxes. For maintenance access, each light box has an access panel, "like reaching into the top of a cookie jar," Mah says.

In the mezzanine bar, the light-box strategy goes from sculptural to flat and monolithic: A ceiling of overlapping Plexiglas panels is backlit by gelled neon like an amber canopy. Neon and striplights illuminate the textures of walls and bar cladding, while tall banquettes envelop patrons who want a more discreet ringside seat. Internally lit cocktail tables, also custom designed, punctuate Mah and Kester's light touch. ■

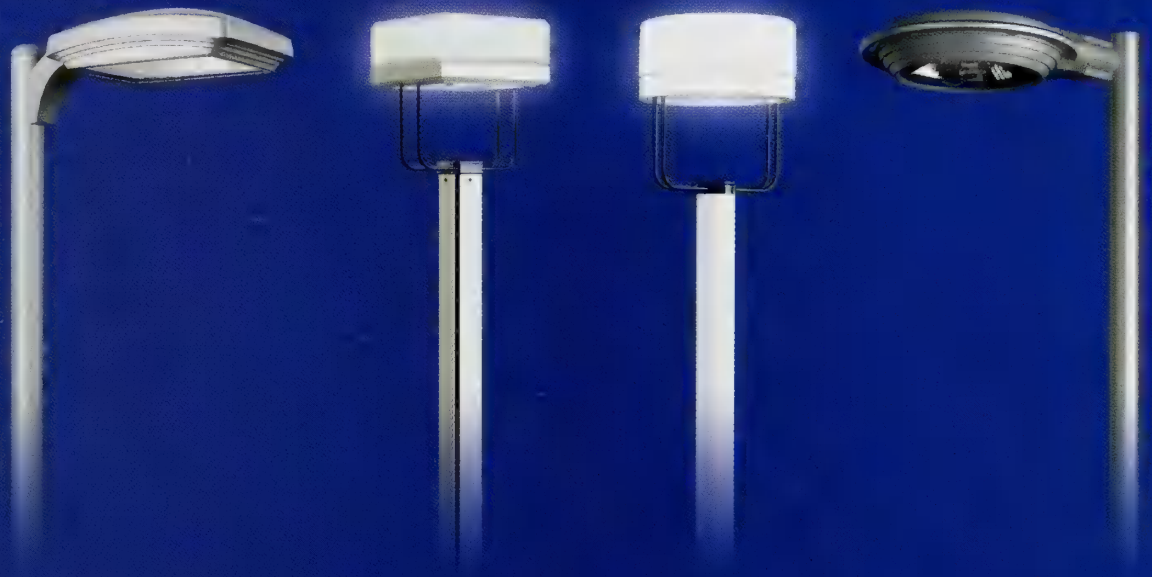
Sources
Striplights: *Starfire*
Floor lights: *Martini*
Downlights: *Lightolier*
Step lights: *Lumière*

www For more information on the people and products involved in this project, go to Lighting at **architecturalrecord.com**.



Overlapping layers of Plexiglas create a geometric canopy in the mezzanine. Backlit by neon, the ceiling meets a wall clad with mirrors to extend the perspective. Striplights outline the edge of the bar top.


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Caution: HID-dimming equipment ahead

HID-DIMMING SYSTEMS CAN SAVE ENERGY, BUT DESIGNERS SHOULD VERIFY MANUFACTURERS' CLAIMS

By Lindsay Audin

The latest wrinkle in lighting-energy management is the introduction of industrial-size dimming equipment to control high-intensity-discharge (HID) lamps. These systems are used in large-scale interiors, like warehouses and exhibition halls, and for exterior applications, like parking lots and street lighting. Cost savings within reasonable payback periods can be achieved, but architects and lighting designers thinking of specifying these systems should consider the other possible consequences, including shorter lamp life than usual and diminished color-rendering quality.

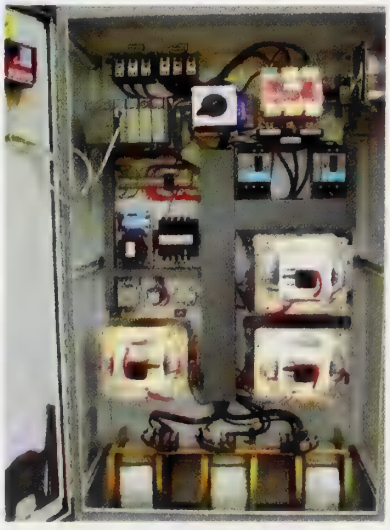
How dimming systems save

Up until a couple of years ago, the strategy used to save energy in most large-scale indoor HID systems was to turn lights down when spaces were not occupied. For existing spaces, each light fixture had to be retrofitted with a bilevel ballast that had an infrared motion sensor. If no movement in a space was detected for a preset period of time, the sensor would switch the light level back to its low setting, cutting wattage and light output. Energy savings of 25 to 40 percent could be obtained, depending on lamp type. The labor required to retrofit a high-bay system with such equipment was expensive because this lighting is typically located up high, making installation difficult.

Outdoors, lighting energy may be wasted because most fixtures are intentionally fitted with lamps that produce 40 to 70 percent more light than is necessary to compensate for "lumen depreciation." That's a problem that occurs when a fixture's output dims with use and as dirt builds up on its lens and reflector. This common practice boosts electric bills considerably. A dimming system can help by cutting the output of a group of new lamps with new or recently cleaned fixtures. Over time, brightness increases to compensate for lumen depreciation. This can cut the electric consumption of a lamp by 25 to 40 percent over its lifetime.

Two new HID-dimming-system products

Two vendors—Electric City, of Chicago (www.electriccityeccc.com), and PowerTec, of Wilmington, North Carolina (www.lightlogix.com)—are now promoting new, advanced HID-dimming systems. These can be sized to handle a range of loads. The equipment provided by both firms is similar. Their large, heavy electrical cabinets contain equipment that intercepts power and conditions it specifically for use in the lights. The units are typically located at floor level in utility rooms near a building's main service panels, not within the light fixtures. The cost is therefore much lower than it would to be to buy and install a new ballast and sensor kit for each fixture in a facility. The dimming mechanism may be remotely controlled and monitored through a building management system. Both vendors claim reductions of 20 to 50 percent in the lighting portion of electricity costs, without reducing essential light levels. While each manufacturer claims its equipment will pay for itself in two to three years, specifiers are advised to refer to their client's electricity purchasing contract when making these calculations rather than using average power prices. Under some contracts and tariffs, rates vary according to the time of day. Where a dimming system might be used to compensate for overbright street or parking-lot lighting, only cheap, off-peak power is likely to be saved, and this may lengthen the payback period relative to calculations using average power pricing. Costs for either system range between $300 and $1,000 per kilovolt-ampere (kVA) of lighting demand, depending on the number and size of the controllers. A system to control 200 fixtures of 400-watts each, enough for a 40,000-square-foot exhibition hall, would cost between $20,000 and $30,000. Electric City's equipment dims lamps in increments, not continuously. PowerTec's system allows nearly continuous variability in its light-output settings.



Inside a PowerTec dimming system.

Component longevity and color shifting

Both vendors claim their system extends lamp and ballast life, but designers are advised to verify this. Manufacturers have cautioned in the past that operating lamps continuously and at very low power will reduce life and increase lumen depreciation. All lamp manufacturers warn that dimming below 50 percent of rated power will likely reduce the lives of high-pressure-sodium and metal-halide lamps significantly, and if dimming levels are kept above 50 percent, there will be no appreciable extension of lamp life. It's also a good idea to reread what your HID lamp warranties may have to say about dimming these lamps.

When some HID lamps are dimmed, a significant color shift may be perceived, especially after roughly half of their useful life has passed. While generally not significant in warehouse applications, poor color rendering in an exhibition hall may unfavorably alter the appearance of displays. Philips Lighting's engineers have found that clear metal-halide lamps may suffer a 35 percent reduction in color rendering index (CRI) when dimmed; the CRI of coated metal-halide lamps is reduced by 15 percent. A Lighting Research Center study of dimmed high-pressure-sodium (HPS) lamps found that color degraded to the point that these lamps eventually appear similar to the very yellow low-pressure sodium, notorious for its inability to render color. ■

Lindsay Audin is the president of Energywiz, Inc. (www.energywiz.com), an energy and technology consulting firm in Croton, New York.

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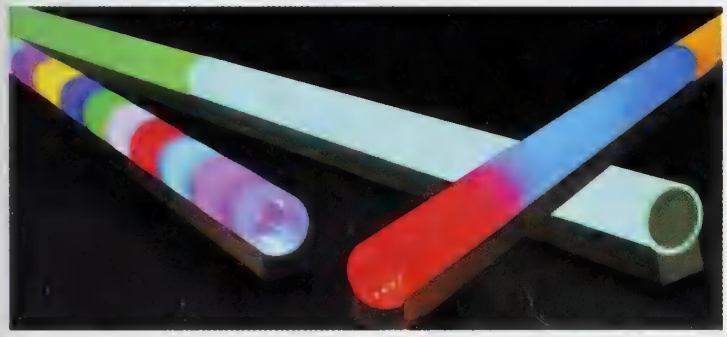
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Lighting solutions

Lighting Briefs

▼ Dreaming in color

Color Stream, the first product from newly formed Bright Lighting, looks like a fluorescent tube, but it changes color, generates patterns, and moves the patterns along the tube. The effect is created by a linear array of LEDs housed in a weatherproof tube suitable for interior and exterior applications. When multiple tubes are linked together, preprogrammed or custom effects cascade down the daisy-chained units. 512/834-2624. Bright Lighting, Austin. **CIRCLE 200**

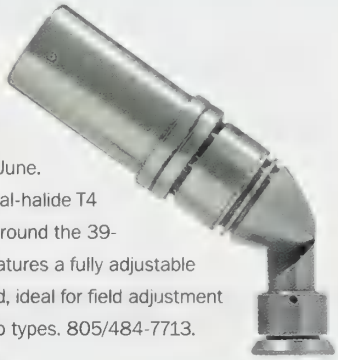




▲ Liteweight platform

Emily McLennan's Longlite features a narrow rectangular platform suspended from the ceiling at both ends by stainless-steel cables. The platform, aluminum with a nonreflective black coating, supports five widely spaced, quartz-glass chimneys housing low-voltage halogen lamps. Based on feedback at this year's ICFF show, McLennan is devising a variation with downlights recessed into the underside of the platform. 612/339-7746. Emily McLennan, Minneapolis. **CIRCLE 201**

► Outdoor area/accent series

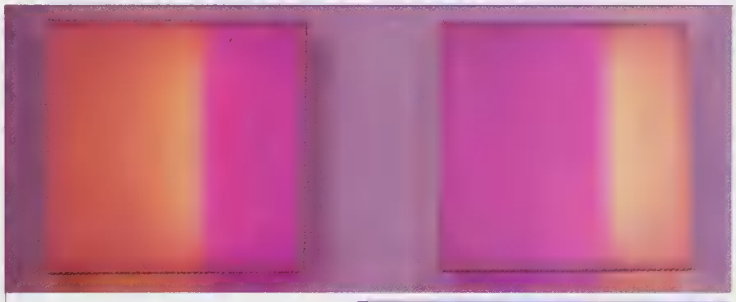


The Lumière Monaco Series was awarded "Best New Product of the Year" at Lightfair International 2002 held in San Francisco in June. The Monaco 2002 accepts the 30-watt metal-halide T4 lamp and the Monaco 2001 was designed around the 39- and 70-watt T6 lamp. The Monaco Series features a fully adjustable beam spread, from narrow spot to wide flood, ideal for field adjustment and eliminating the stocking of multiple lamp types. 805/484-7713. Cooper Lighting, Camarillo, Calif. **CIRCLE 203**

► Double helix

McGuire has expanded its collection of copper repoussé lamps by artist Robert Kuo. Repoussé, a hammering technique also known as chasing, is used to create decorative relief in metal. The Helix lamp design comes in either a table- (shown) or floor-lamp model. Both feature a square base with sharply concave sides that twist to form the neck. Each is paired with a dramatic squared, tapered shade in ivory linen or black lacquered parchment. The table design has a single lamp with a three-way switch, while the floor design is a double-cluster lamp. 414/626-1414. Kohler Company, Kohler, Wis. **CIRCLE 202**





▲ Rainbows and stars



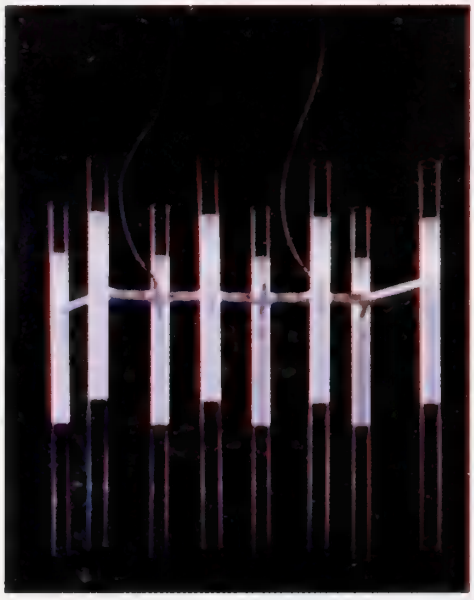
Introduced at the ICFF show in May, the Therapie lamp from the Montreal firm Snowlab was inspired by color and light therapy. Therapie comes in either a square or rectangular shape and features a stretched PVC canvas on an aluminum frame. The color effects are created simply by a 120-volt fluorescent tube and three basic interchangeable color acetates. The Bio lamps, also on display at the show, are made of nonenameled white porcelain. Thin rays of light from a 40-watt incandescent bulb escape from the perforations on the front and back of the lamps. 514/808-9483. Snowlab, Montreal. **CIRCLE 205**



◄ Retail lighting system

The Vertical Double Rail system was created by MP Lighting in response to a demand from retailers for an affordable system that could be versatile enough to illuminate wall displays, floor displays, cash counters, and ceilings. Two parallel copper-based, alloy-plated rails, one positioned above the other, are connected to movable low-voltage lighting fixtures and pendants. 604/708-1184. MP Lighting, Vancouver. **CIRCLE 204**

Lighting Briefs



▲ Modern romantic

When she designed the Helen Chandelier as one of several custom fixtures for a client, Larissa Sand created a Modernist interpretation of the Romantic chandelier. "The objective of the design project was to distill the multifixture light to its essential elements and redefine a traditionally ornate object into a strong sculptural piece," says Sand. To accomplish this, Sand suspended slender tubes of lab glass on an armature of precision CNC machined aluminum. Eight partially etched laboratory glass tubes are pierced by the armature, which holds the 12-volt halogen light source. The glass is held in place by an internal spring mechanism, maintaining the clean lines of the piece. Helen is part of a line of etched-glass and aluminum fixtures available through 100watt Network. 888/477-9288. 100watt Network, New York City. **CIRCLE 206**

▼ Whatever floats your boat

Launched at this year's ICFF, Lolah is a brand-new Canadian furnishings company that already has a history: For 60 years, Lolah's parent company has been designing custom interiors for the luxury yacht market. Therefore, it's not surprising that this new interiors company has a collection of products that utilize both the technology and the materials of the nautical industry. The Jube Jube lamp, designed by Canadian Scot Laughton, is an adjustable halogen pendant featuring an earthenware ceramic body with a matte finish glaze. The lamp uses two 40-watt halogen bulbs and a 15' cable line current. The lamp is 13" long x 7⅛" wide x 20" high. Jube Jube can be used alone or in a group of lamps. Lolah also offers an array of new tiles, tables, chairs, and accessories. 800/909-8233. Lolah, Toronto. **CIRCLE 207**



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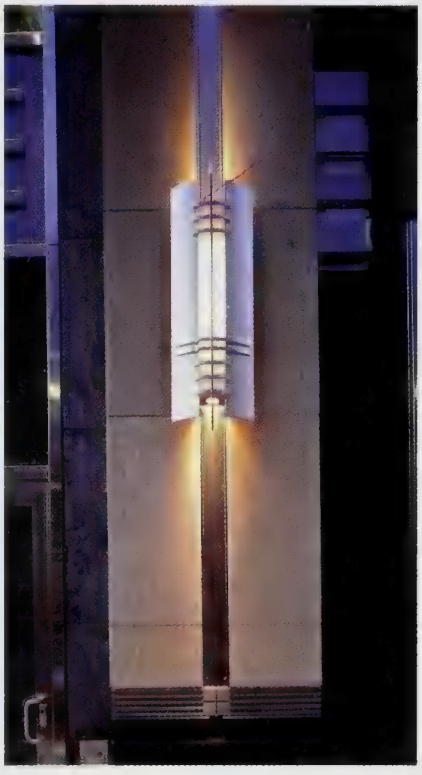


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Lighting Briefs

► Aluminum fixtures

Fifteen sculptured aluminum light fixtures designed and built by New Metal Crafts illuminate the new 18-story office building at 550 W. Jackson Boulevard in Chicago. The 5' x 18" lamps have combination polished and satin-finish curved aluminum-plate face panels with vertical fins at the center and eight horizontal ribs across. An acrylic panel that emits light down the front of the lamp is hinged for easy relamping. Each fixture is lit by two 17-watt T8 fluorescent lamps and two 40-watt Par20 up and down lamps housed in a weather-proof aluminum back box. 800/621-3907. New Metal Crafts, Chicago. **CIRCLE 208**



▼ Not just another hole in the ceiling

Engineered Lighting Products' new Hole in the Ceiling downlights are offered in three sizes, with round or square 4½", 6", and 8" apertures. Once installed, the fixtures actually appear to be a part of the ceiling and look like a custom-formed drywall "light niche". There is no visible metal or trim in the normal viewing angle, and the design provides a 45 degree visual cutoff for the lamp. 626/579-0943. Engineered Lighting Products, El Monte, Calif. **CIRCLE 209**



► Wireless radio frequency technology

RadioLink, Vantage's new wireless RF system, provides a completely integrated automation system for residential and commercial use. A single RadioLink system handles up to 15 controllers and provides error-free transmissions as far as 100 feet. With RadioLink, small transceivers are built into each component and control not only lights but audio/video, draperies, blinds, security, heating, cooling, and more. 800/555-9891. Vantage Controls, Orem, Utah. **CIRCLE 210**



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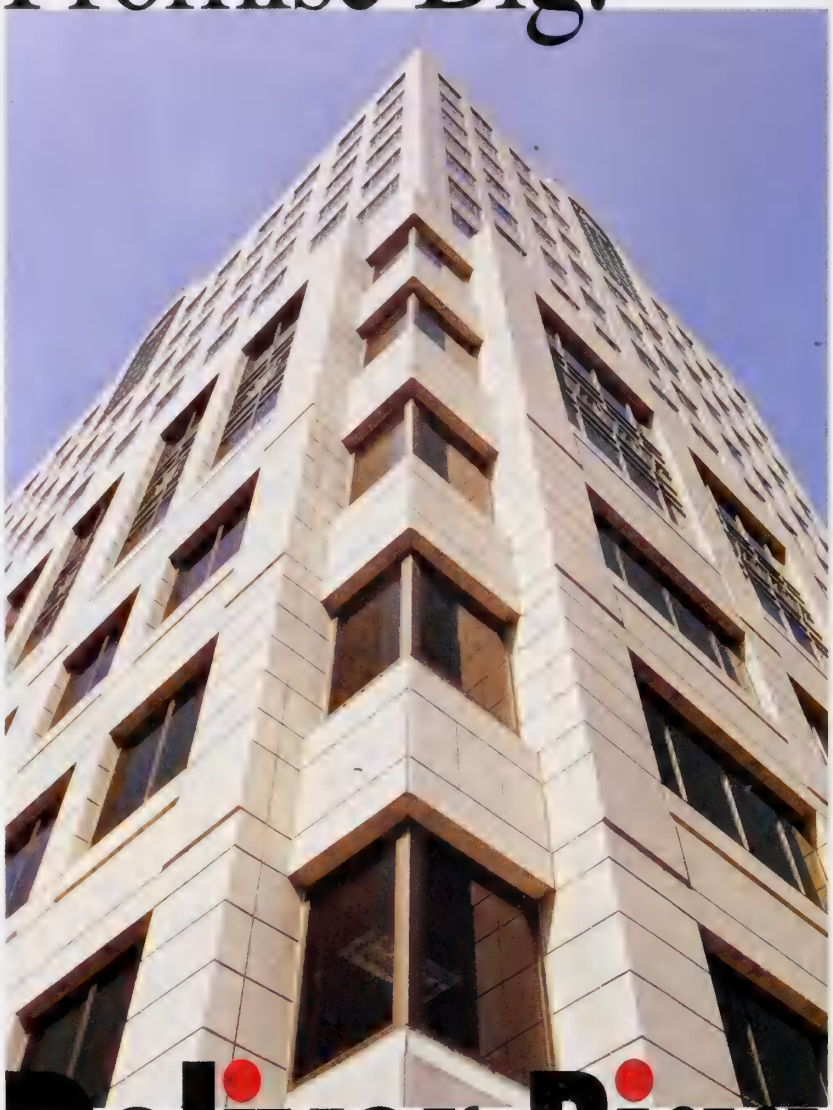


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New Products

New cast-glass textures, long-span acrylic, safety interlayers: **glass and glazing** technologies are always evolving. Starting on December 13, glass fans can visit **"From Tiffany to Stephen Holl: American Glass and Design from 1900–2000"** at the American Bible Society in New York City. The work of glass artists such as Ellen Mandelbaum (whose work is shown on these pages) will be on display. *Rita F. Catinella*

Crumpled paper texture is the newest addition to cast-glass family

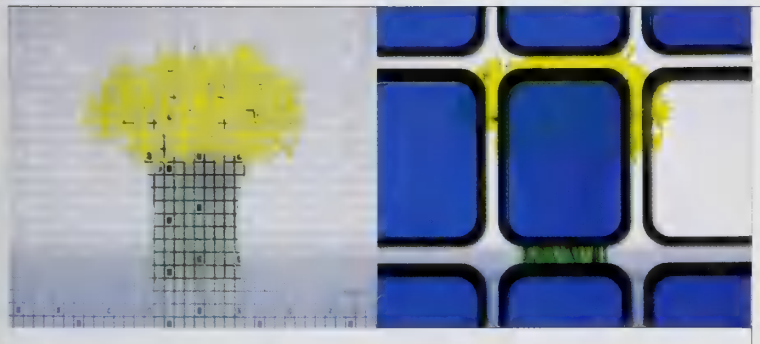
After two years of research and design, Joel Berman Glass Studios has developed new casting methods for three-dimensional molds. The latest addition is the Arrigado texture, an abstraction of folded paper than can be developed as a clear, frosted, matte, or colored sheet in any Pantone color. The product is available either in thermal formed plastic or in tempered, laminated, or annealed glass.

Joel Berman Glass Studios uses a process of recycling and reusing tempered glass that traditionally cannot be processed any further, according to company design director and president Joel Berman.

Since the glass is both structural and functional, it can be used for indoor and outdoor partitions, boardroom walls, office side-lite panels, curtain walls, and signage. The corrugated sizes range up to 5' x 10', with 12' available for some configurations. Pattern directions include both horizontal and vertical. Arrigado is offered in 42" x 98", 48" x 102", and 32" x 102" sheets. If nontempered, almost any size is available.

Arrigado joins a family of products that includes textures similar to corrugated sheet metal and corrugated cardboard. A line of table accessories will be launched this fall. 888/505-GLASS. Joel Berman Glass Studios, Vancouver. **CIRCLE 211**





Compendium of standard glass options

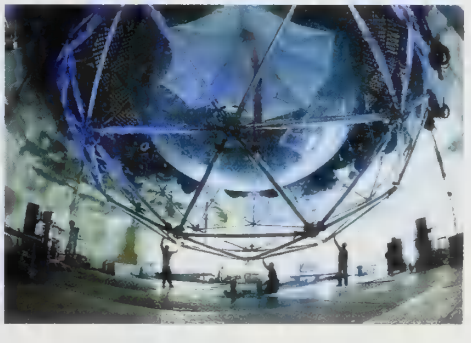
Skyline Design's G Glass Compendium, created in collaboration with architects, includes two collections of five patterns each with 11 options available to alter scale, texture, translucency, finish, and color. To help architects visualize more than 100 options, Skyline developed a unique Web-based specifying tool. The site displays 10 patterns, allowing the user to choose from available options and then view the option selected in an actual installation. Designers can store their selections in an online sample library and e-mail favorites to their clients for approval. Patterns include both geometric and organic variations; new patterns are to be added yearly. All large-scale sandblasted patterns are protected by Skyline Etch Sealer. The palette includes red, blue, green, yellow, orange, and black, and the glass is available in ¼", ⅜", ½", or ¾" thicknesses. 888/278-4660. Skyline Design, Chicago. **CIRCLE 212**

Large-span acrylic sheets add possibilities

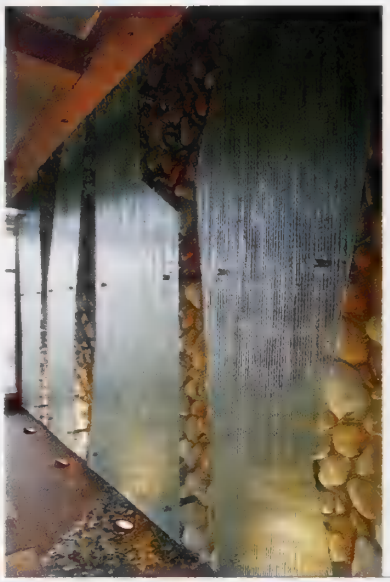
Known as a manufacturer and installer of cast-acrylic windows for aquariums and marine parks, Reynolds Polymer Technology can also use its single-pour casting method to manufacture crystal clear acrylic in almost any shape, size, and color for an array of other architectural projects.

Customers of monolithic acrylic sheet have countless sizes from which to choose, since the sheet is custom fabricated for specific projects. Options include sheet sized in any dimension up to 27½' x 10' and in thicknesses from 1½" to 40". Reynolds can also chemically bond acrylic panels together, in the factory or on-site. Varied surface treatments for different effects are available, and acrylics also provide weatherability and optical clarity for a light-piping effect.

For the SNO Sudbury Neutrino Observatory in Sudbury, Canada (shown below), Reynolds created a seamless acrylic sphere 40' in diameter, for astrophysics research. 800/433-9293. Reynolds Polymer Technology, Grand Junction, Colo. **CIRCLE 213**



New Products



◄ Rainy glaze

Nathan Allan's cast-glass products are used in hotels, offices, and custom homes. Recent installations include this entry foyer feature wall for the Rivers Reach condominium project in British Columbia. Half-inch-thick glass lites are pin-mounted over a river-rock wall with stainless-steel mounting rods that are deep set through the rocks into a concrete wall. The lites feature a Rain texture that simulates a water flow over the rocks into a "creek" on the floor. 604/277-8533. Nathan Allan Glass Studios, Richmond, British Columbia. **CIRCLE 214**

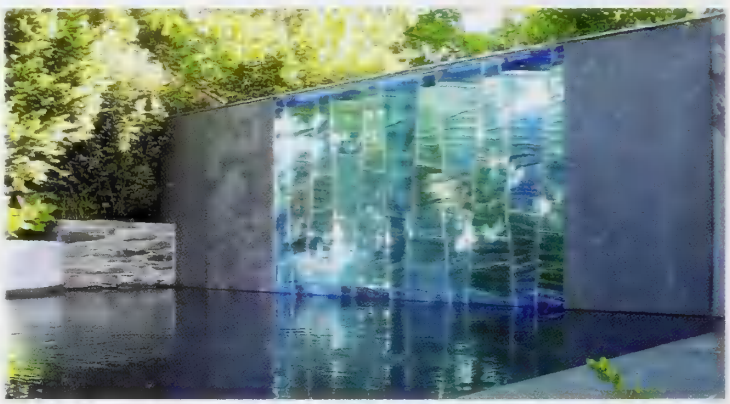


◄ Cool glasses

Solarcool Solex glass (left) combines reflective Solarcool coated glass and light green Solex tinted glass in a single product that provides interior glare control while transmitting visible light. PPG claims that Solarban 80 coated clear glass (insert), in a 1" insulating unit, has the best balance of high visible-light transmittance (47 percent) and low solar-heat-gain coefficient (0.23) in architectural glazing today. 800/377-5267. PPG Industries, Pittsburgh. **CIRCLE 215**

▼ Vertical pool of glass

A collaboration between landscape designer John Thompson and SWON Design, this 7' x 10' glass wall was designed to simulate the movement of a pool of water and visually integrate with the overall design of a Toronto residential landscape. Each of the 77 glass blocks, approximately 1" thick, are individually cast using graphite molds. As the sun moves, it changes the color transmitted and the reflective values of the wall. 866/285-4096. SWON Design, Sutton, Quebec. **CIRCLE 216**





▲ Open for interpretation

Located in Hartsdale, New York, the Marion Woods project is an adult home and chapel for five orders of nuns that features 28 stained-glass windows designed by artist Ellen Mandelbaum. Rather than illustrating literal narrative imagery, the chapel's stained glass features abstract forms inspired by the landscape and changes of light and season. 718/361-8154. Ellen Mandelbaum, Long Island City, N.Y. **CIRCLE 217**

► Metallic interlayers



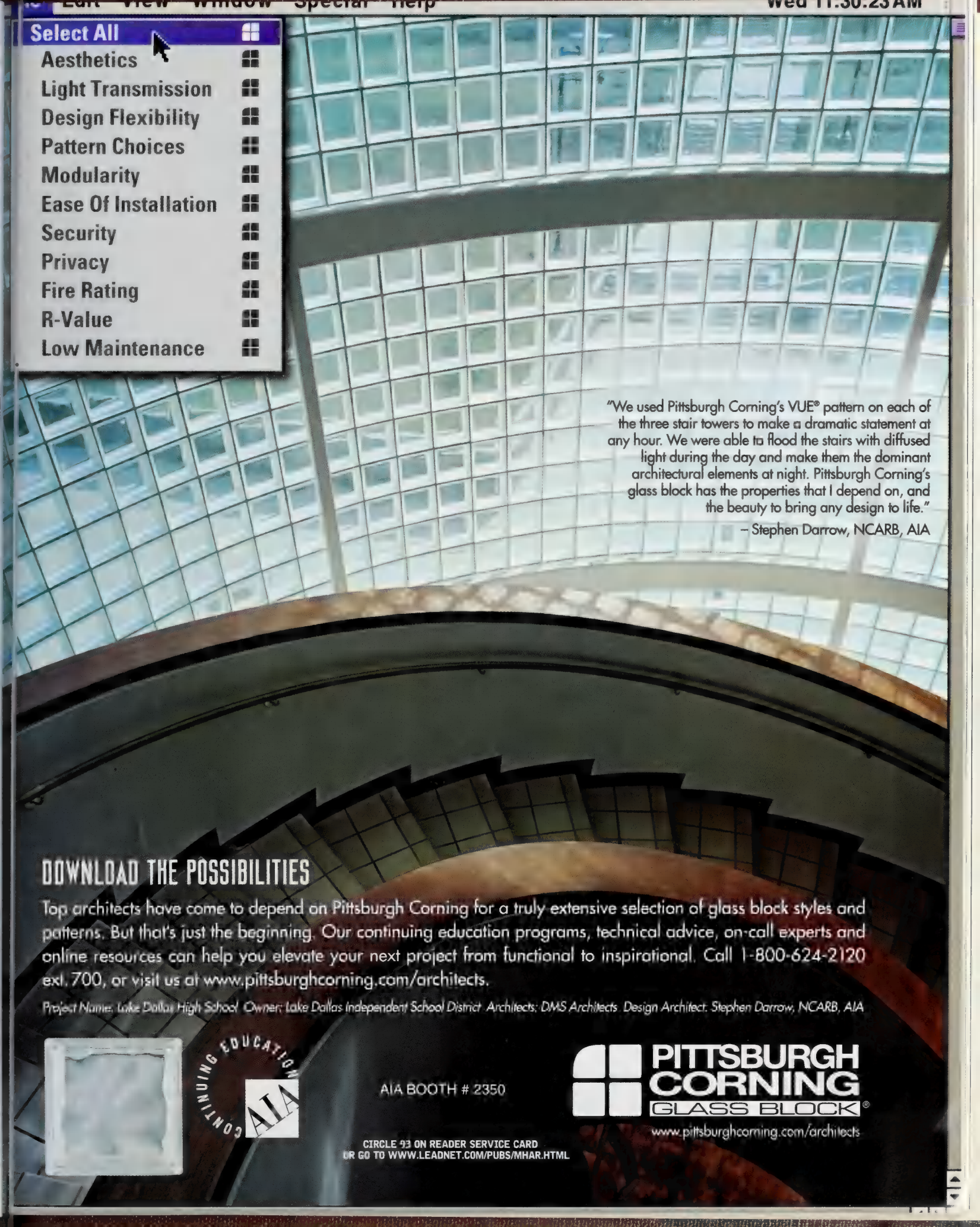
While exploring the possibilities of creating a metallic interlayer for glass, Solutia's technology team discovered a way to add texture to the glass at the same time. This special metallic interlayer can also be combined with Solutia's range of 10 Vanceva Design color hues. The three textures within the Metallic Series include the fine fabric look of Linen, the subtle geometric effect of Honeycomb, and the grainy look of Sandstone. 877/674-1233. Solutia, St. Louis. **CIRCLE 218**



◄ Quick safety glass

Bendheim's new product line, Quickship, includes 14 varieties of an architectural safety glass that conforms to building safety codes. Bendheim claims that Quickship is the first line of laminated glass fabricated to the customer's requested dimensions and shipped within two weeks at volume pricing. At the core of the line are three popular Bendheim products: Laminated Rice Paper, Laminated SatinTech, and Laminated Tuxedo. 800/835-5304. Bendheim, New York City. **CIRCLE 219**

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New Products



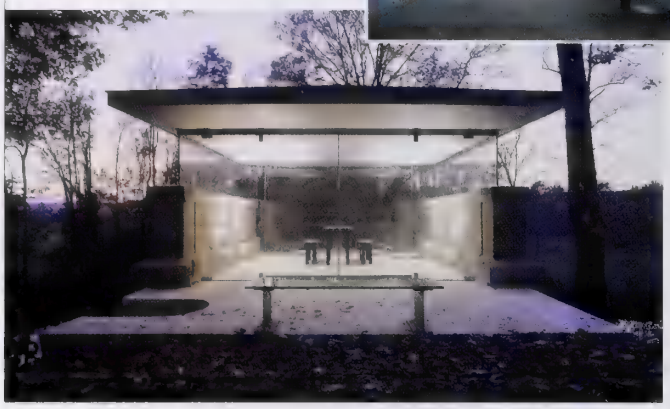
▲ Geometric glazing

The Raindrops glass tread (above left) features layers of laminated, tempered glass bonded together. The surface layer is acid-etched to increase slip-resistance, and different effects can be achieved by applying a frit layer, spandrel coating, or mirrored film. The Cumulus circular glass (above right) is a sheet of tempered glass curved into a lens form. The glass is first heated to the optimal temperature required for the forming of the curvature and then tempered after it takes shape. 718/599-0350. UAD Group, Brooklyn, N.Y. **CIRCLE 220**

▼ Laminated-glass awards

Celebrating its 10th anniversary, the DuPont Benedictus Awards is an annual competition to recognize innovative architectural uses of laminated glass. The winner of this year's award was the Talus du Temple glass pavilion (below), a small summer residence in the Burgundy region of France designed by Dirk Jan Postel of the Netherlands. The TGV train station (right) in Avignon, France, received a special recognition. 800/872-5001. Dupont Benedictus Awards, Washington, D.C. **CIRCLE 221**





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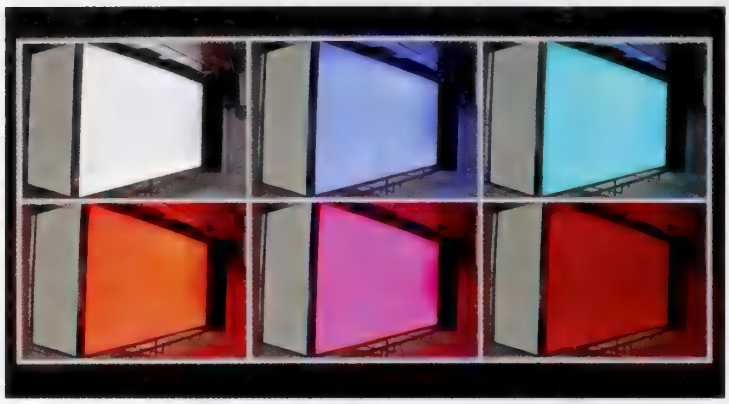
Versalux Blue is now available in 10mm thickness.

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New Products

▼ Wall of light

ChromaTransFusion is a system from Cesar Color that enables designers to create walls of pure, colored light that can be programmed to emit any color in the spectrum, changing slowly from one color to the next. ChromaTransFusion was developed using a Cesar Color process that involves the bonding of a proprietary interlayer material between two layers of safety glass. The frosted interlayer is able to evenly distribute a light source cast upon the glass edges, so that the entire surface area glows. The system is available in panels up to 5' x 12' that can be ganged together to form a wall. 800/275-7272. Cesar Color, Phoenix. **CIRCLE 222**



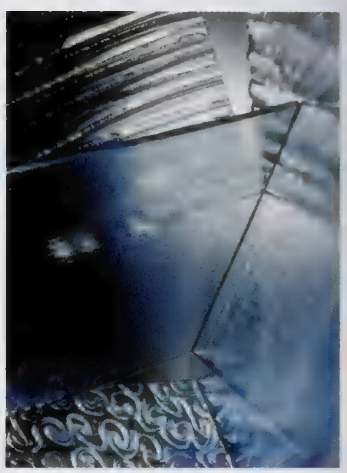


▲ Adding texture

Pilkington has released three new patterns in the company's Texture Glass product line: Matrix (shown), Staccato, and Strata glass. Ideal for partitions, glass inserts, shower doors, and other applications, all three additions are available in standard sizes and in either 1/8" or 1/4" thicknesses. 419/247-3731. Pilkington North America, Toledo. **CIRCLE 223**

▼ 3D glasses

UltraGlas handcrafted architectural glass can be sculpted into an extensive array of translucent, three-dimensional designs. Ideal for a number of applications, the material can be specified in any of 12 glass colors or finished in virtually any specified color or color combination. Shown below is UltraGlas with a squiggle pattern, linen surface texture, and UltraSwirl design texture. 818/772-7744. UltraGlas, Chatsworth, Calif. **CIRCLE 224**



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Product Briefs



▲ Felt better

Introduced during NeoCon in Keilhauer's new showroom designed by Toronto firm Yabu Pushelberg, the Felt chair attracted a lot of attention. Designed by Canadian Brent Cordner, the chair consists of an internal structure of steel, over which layers of felt are folded and finally covered in leather. The chair is constructed entirely of all natural and/or biodegradable materials, and features naturally dyed leather. An ottoman is also available. 800/724-5665. Keilhauer, Toronto. CIRCLE 225



▲ Watch out all sleeping students

Developed in collaboration with the Wharton School of the University of Pennsylvania, the Wharton Lectern from KI features electronic height adjustments and a panel to manipulate room lighting, audio, and video. The user can access the Internet and LAN directly from the lectern, control cameras located in the room, and store "user preferences." The lectern is suited for college and university markets, corporate auditoriums, large training rooms, and conference facilities. 800/424-2432. KI, Green Bay, Wis. CIRCLE 227



Product of the Month McDry

Usually, a urinal that doesn't flush is a problem. But in the case of McDry, Duravit's new waterless urinal, that is all part of the design.

The McDry urinal functions according to a simple principle: a specially developed sealing liquid that has a specific gravity lighter than urine fills the ceramic siphon of the unit to keep odors away. The liquid, McDry Blue, is largely biodegradable and sufficient for at least 5,000 uses. Renewing the liquid is quick, hygienic, and requires no physical contact.

The convex, hygienic rear wall, ceramic material, and lack of a flushing rim make the urinal easy to clean. Duravit recommends a special cleaner for daily maintenance and advises occasionally emptying a bucket of water into the urinal for a more thorough cleaning. McDry's droplet shape prevents dirt and bacteria from building up, and the product is completely contact-free for the user—a hygienic benefit that extends far beyond the Men's Room. 888/DURAVIT. Duravit USA, Duluth, Ga. CIRCLE 226



▲ Zinc composite cladding material

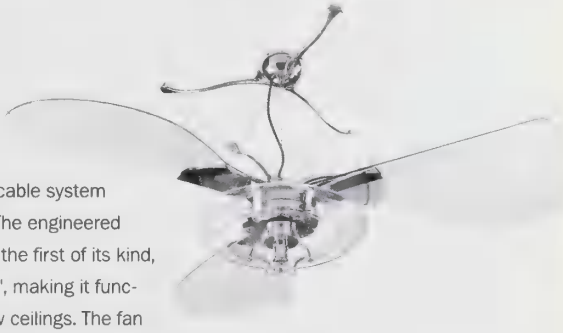
The Ontario architectural firm B.H. Martin Consultants is one of the first in the world to clad its designs in Alcoa Cladding System's new Reynobond Zinc Composite material (ZCM). The firm used the material as part of a wood and glass facade for the Shania Twain Centre in Timmins, Ontario. Approximately 5,000 to 7,000 square feet of ZCM were used to fabricate the panels. 770/840-6456. Alcoa Cladding Systems, Norcross, Ga. CIRCLE 228

► Faster flooring

Trac-Loc is Wilsonart's new laminate flooring installation system for commercial interiors. The system consists of an aluminum track onto which laminate flooring planks or tiles are inserted and locked into place without glue. The system allows the floor to be quickly reconfigured or taken apart piece by piece and reused at another site. More than 4,000 square feet of flooring per day can be installed using Trac-Loc. 800/710-8846. Wilsonart Flooring, Temple, Tex. CIRCLE 229

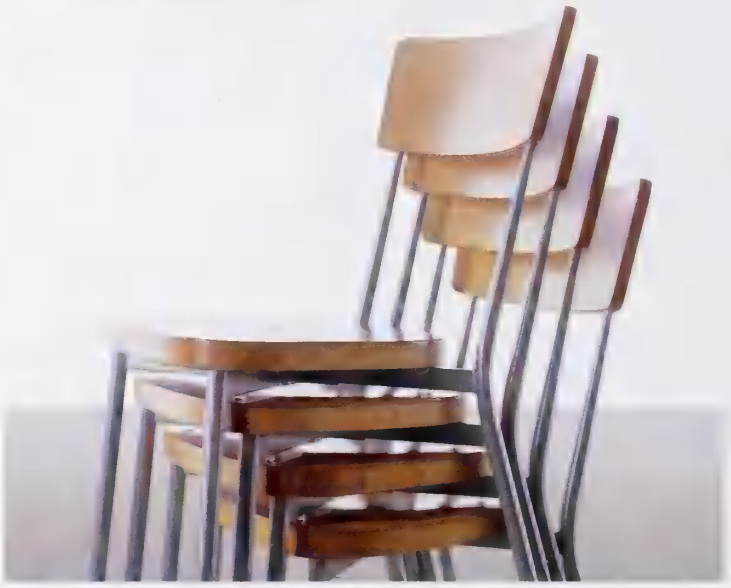


► Floating fan



Like its namesake, the Jellyfish fan is also an invertebrate, foregoing the typical down rod for a cable system that lets it float in the air. The engineered suspension, claimed to be the first of its kind, is adjustable from 6" to 72", making it functional for both high and low ceilings. The fan features a standard crystal-clear glass body, mouth-blown in the Murano technique, and three transparent blades. 800/443-4626. Quorum International, Fort Worth. CIRCLE 230

Product Briefs



▲ Tall or short order

The Latte chair, launched by Arconas at this year's NeoCon, is available in two versions: a stacking chair and a bar-height chair. Latte stacks six high and provides a complementary look for dining to bar areas. The chair is finished in clear maple and five other translucent finishes, including Espresso, Berry Frappa, Curaçao Blue, Green Tea, and Mochaccino. Latte's silver epoxy-coated frame is constructed of welded tubular steel. 800/387-9496. Arconas, Mississauga, Ontario. **CIRCLE 231**

► Clay roof tiles



U.S. Tile has introduced Montoro genuine clay roof tiles to the U.S. market. Manufactured in Australia by Boral Montoro, the tiles have a water absorption of less than 6 percent and are guaranteed safe for use in areas subject to repeated freeze-thaw cycling. The two-valley shape of the French profile is shown above in a full ceramic-glaze finish in ebony. The tiles are also available in a Tuscan profile. 800/252-9548. U.S. Tile, Corona, Calif. **CIRCLE 232**



◄ Natural shades

Conrad introduces the Sunne collection of handcrafted sunshades. This collection joins palm leaves with hand-tied flax strands, wild mulberry, and other select fibers. Conrad shades are individually handwoven to size and available in over 50 weaves of natural fibers, with sun control, privacy, and motorization options. The shades can fit any size window, including arches and angles. 415/626-3303. Conrad, San Francisco. **CIRCLE 233**

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Product Briefs

▼ Stylish storage options

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▼ Taking warming ovens out of the kitchen

Dacor has taken a luxury normally found in the kitchen—the warming drawer—and introduced it to other areas of the home. Dacor's new warming oven (IOWO24) can be used indoors or outdoors, in wet or dry areas. Used in the bathroom, it can keep towels or sleepwear warm for after showering or bedtime. Outside, the warming oven can complement a built-in outdoor grill to keep items warm until ready to serve, or to keep towels warm after a lap in the pool. The warming oven fits four bath towels, two beach towels, one oversize terry-cloth robe, or four dinner plates side by side. An integrated drawer front allows a custom panel to match the overall look of kitchen, bath, or outdoor cabinetry. The temperature settings range from 100 to 200 degrees and are safely concealed behind the drawer panel. 800/793-0093. Dacor, Diamond Bar, Calif. **CIRCLE 235**



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Product Literature

Wood stain fan deck

Benjamin Moore has introduced a new color-selection tool, the Moorwood double-sided fan deck, to assist in the selection of exterior stain color. The new tool shows how the type of wood can influence the appearance of a stain. 800/672-4686. Benjamin Moore, Montvale, N.J. **CIRCLE 236**

Guide to New York

The premier issue of *New York Design to the Trade* is a comprehensive source for the New York area's showrooms, manufacturers, and products. Designers and architects can request a complimentary copy. 561/620-3010. Direct Response Publications, Boca Raton, Fla. **CIRCLE 237**

Flooring design

Congoleum Corporation has published the 2002–2003 edition of its *Design Book*, which presents the company's complete offering of residential and commercial resilient and laminate flooring products. 800/274-3266. Congoleum Corporation, Mercerville, N.J. **CIRCLE 238**

Security brochure

A new 24-page brochure from Siedle Communication Systems describes custom solutions for door communication and security applications. 800/847-3353. Siedle Communications Systems, Broomall, Pa. **CIRCLE 239**

Metal roofing brochure

An eight-page brochure is now available from Petersen Aluminum Corporation describing the company's new Tite-Loc line of metal roofing panels. 800/323-1960. Petersen Aluminum Corporation, Elk Grove Village, Ill. **CIRCLE 240**

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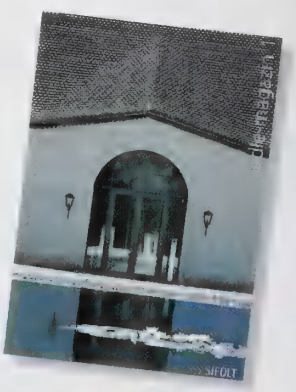
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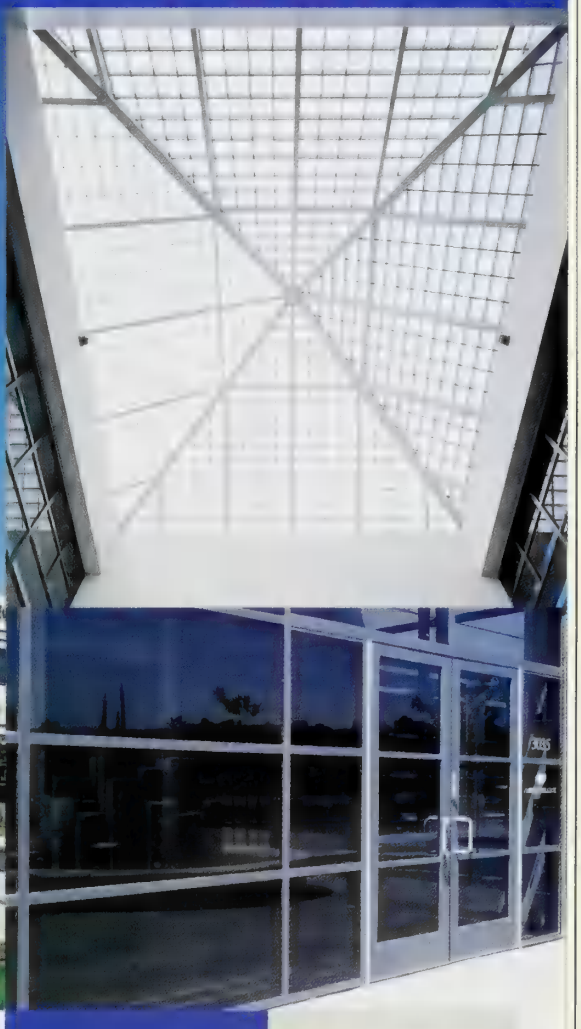
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Product Literature

Windowy city

Wausau Window and Wall Systems offers *Wausau's Windows on the Windy City*, a free illustrated information brochure on the company's contributions to the Chicago skyline. 877/678-2983. Wausau Window and Wall Systems, Wausau, Wis. **CIRCLE 241**

Heavy timber brochure

Trus Joist offers a new eight-page brochure for the Parallam PSL Heavy Timber product line. Application and installation information is provided for this environmentally-friendly building material for heavy timber structures. 800/562-0931. Trus Joist, A Weyerhaeuser Business, Boise. **CIRCLE 242**

Green commitment

An updated and expanded 16-page brochure from USG Corporation details the company's environmentally-friendly products and manufacturing processes. Entitled *Committed to the Environment*, the brochure closely examines the content and manufacturing process for two of the company's primary product lines: wallboard manufactured by United States Gypsum Company and ceiling panels made by USG Interiors. The brochure also outlines USG's use of alternative resources—including recycled industrial materials, wastepaper, and renewable agricultural sources—to preserve natural resources and support clean air. 800/USG-4YOU. USG Corporation, Chicago. **CIRCLE 243**

Specification software

BlueBolt Studio is a software tool that lets specifiers work with color-true product images and accurate specifications for more than 25 types of interior finishes and over 400 leading commercial brands. Designers can create, archive, and share ideas with clients and colleagues by saving and e-mailing digital sample boards. Through the software, designers can also order samples from multiple suppliers online with a single click. 866/865-2600. BlueBolt Networks, Durham, N.C. **CIRCLE 244**

Timely catalogs

The *2002–2004 Wall, Mantel, and Tabletop Clock* and the *2002–2004 Floor Clock* catalogs are now available from the clock experts at Howard Miller. 616/772-9131. Howard Miller, Zeeland, Mich. **CIRCLE 245**



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Snap-Clad panels are now Miami-Dade County Product Approved for steel and aluminum. *For more information regarding this or our complete line of metal roofing products, please call us at* ***1-800-PAC-CLAD or visit our website @ www.pac-clad.com****. For your pet supplies, check out www.braxtons.com!*

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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program title: **Facade Engineering Emerges as a Highly Specialized Science and a Striking Art Form, Architectural Record (08/02, page 163).** 08YEDITE
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2.	a	b	c	d	**7.**	a	b	c	d
3.	a	b	c	d	**8.**	a	b	c	d
4.	a	b	c	d	**9.**	a	b	c	d
5.	a	b	c	d	**10.**	a	b	c	d

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Embassy of Finland in Washington, D.C., by Heikkinen-Komonen. Photo by Jeff Goldberg/ESTO

Tuesday, September 24, 2002, 6:30 p.m.

SCANDINAVIA HOUSE
58 Park Avenue (38th Street), New York City

$20 general admission
$10 for ASF and Architectural League members and students

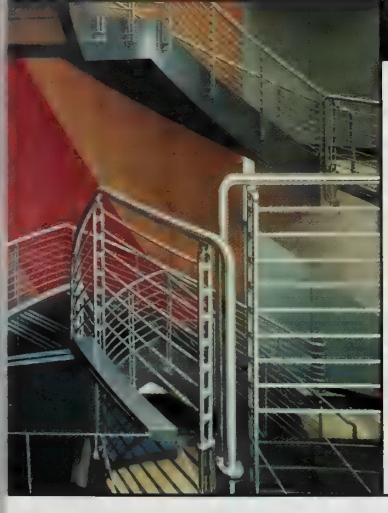
Prepaid reservations required: (212) 847-9740

A reception will follow the lecture.

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Architect: Highland Associates, P.C.
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Program title: **Plumbing Sensor Technology Brings Innovative Solutions To Bathroom Design (08/02, page 179)** 08YSPONG

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3.	a	b			**8.**	a	b	c	d
4.	a	b	c		**9.**	a	b		
5.	a	b	c	d	**10.**	a	b	c	

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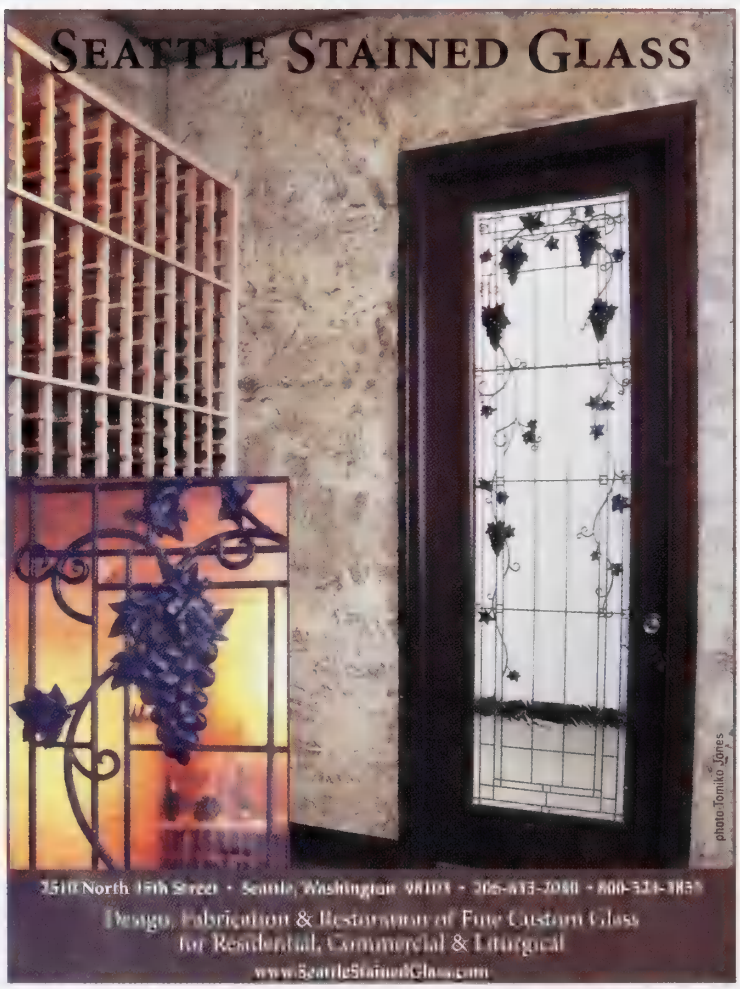
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Program title: **Design Techniques for Controlling Movement Stress in Partitions and Ceilings (08/02, page 185)** 08YSPONH
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2.	a	b	c		**7.**	a	b			**12.**	a	b	c	d
3.	a	b			**8.**	a	b	c		**13.**	a	b	c	d
4.	a	b			**9.**	a	b	c	d					
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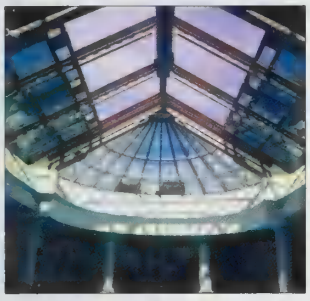
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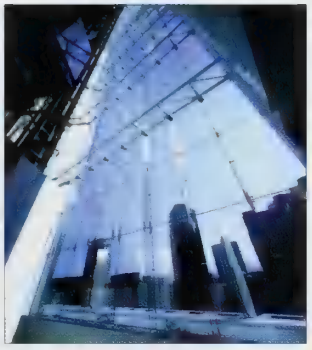


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Wall Sconce Luminaire

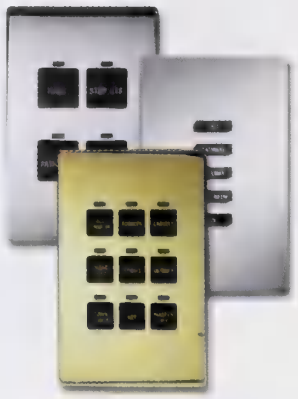


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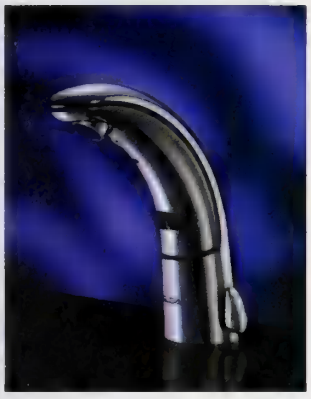
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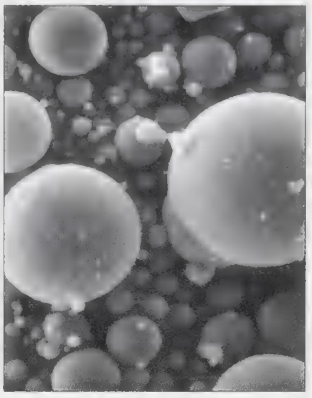


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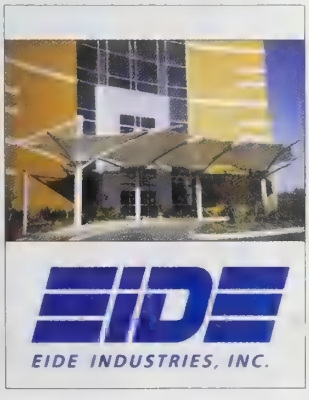


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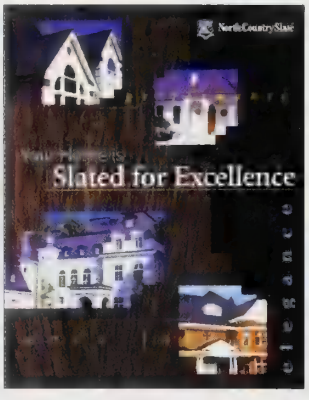


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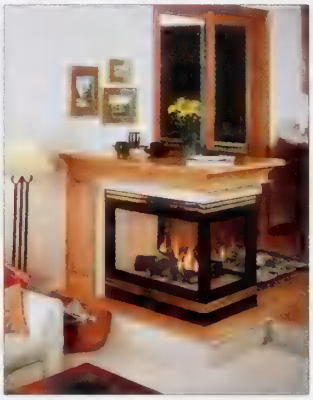


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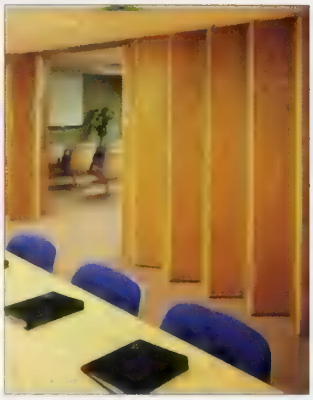


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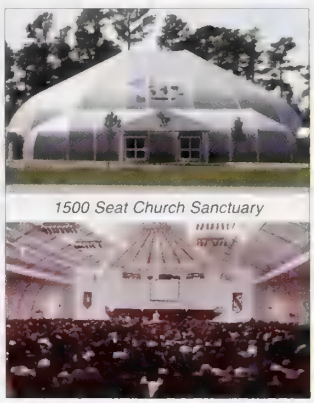


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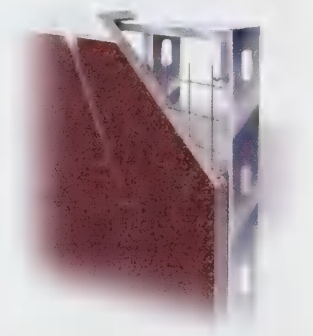


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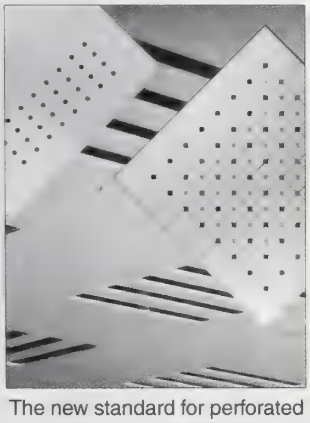


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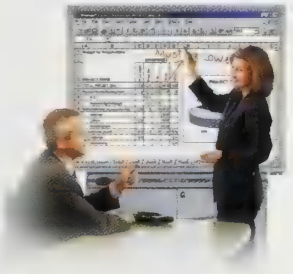


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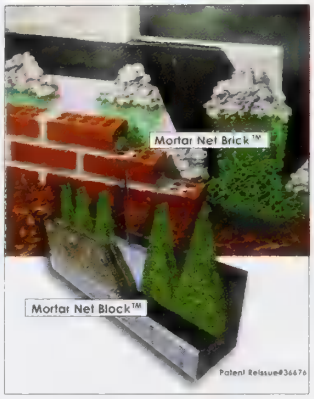
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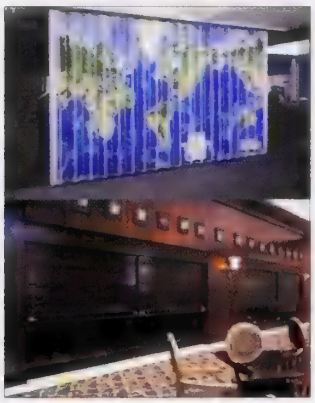


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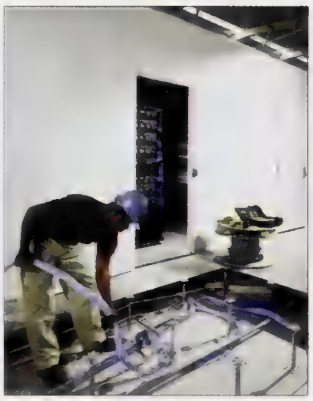


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Applications

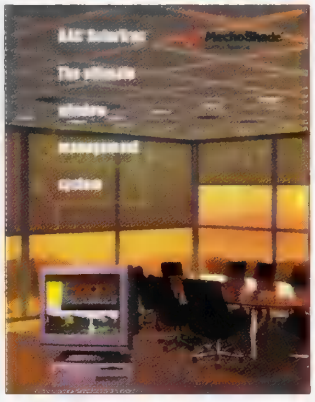


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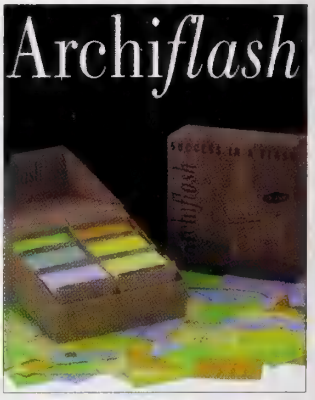


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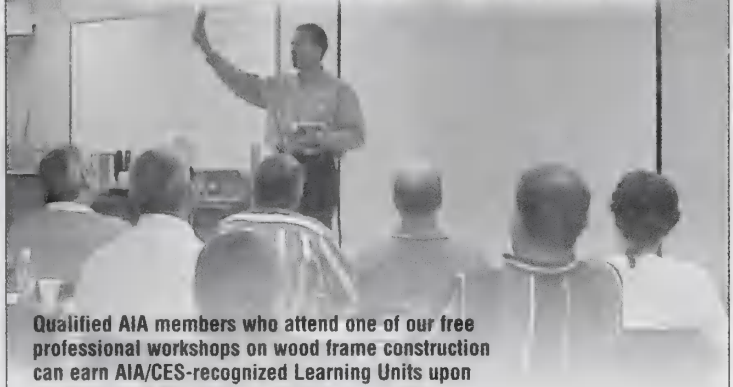
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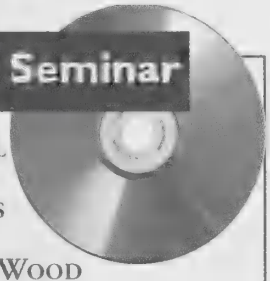
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Responsibilities include budget, planning, development, personnel, student academic affairs, faculty development, promotion of research, and planning and implementation of degree programs. Responsibilities also include providing academic and administrative leadership, enhancing diversity, and promoting multidisciplinary and interdisciplinary activities. Further responsibilities include working with faculty, both through the administrative structure and faculty governance system, and working effectively with public and private constituencies outside the University. The Dean reports directly to the Senior Vice President and Provost.

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REQUIRED – An academic and/or professional record that merits appointment as a professor with tenure. A demonstrated commitment to excellence in research and/or creative activity and quality undergraduate and graduate instruction. Relevant administrative experience, preferably in a major research university. Demonstrated understanding of research, instructional, and service needs of a College of Architecture and Environmental Design.

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NOMINATIONS AND APPLICATIONS must be mailed or emailed to: J. Robert Wills, bob.wills@asu.edu, College of Architecture and Environmental Design Dean Search Committee, Office of the Senior Vice President and Provost, Arizona State University, P.O. Box 872803, Tempe, AZ 85287-2803

Applications must include a curriculum vitae and a letter that highlights important qualifications and the basis of interest in the position. APPLICATION MATERIALS WILL BE HELD IN CONFIDENCE AND REFERENCES MAY BE REQUESTED AT A LATER DATE.

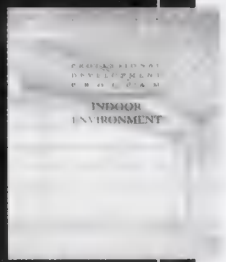
The deadline for receipt of applications is November 22, 2002. Applications will be accepted after the deadline and reviewed on a weekly cycle as necessary until the search is closed. The preferred starting date is July 1, 2003, but the date is negotiable. The salary is competitive.*Arizona State University is an Equal Opportunity, Affirmative Action Employer*

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Screening of candidates will begin July 15, 2002 and continue until the position is filled. To apply, send a curriculum vitae and letter detailing your qualifications to: **Syracuse University School of Architecture Dean Search, Esther E. Gray, Special Assistant to the Vice Chancellor, Office of Academic Affairs, 304 Tolley Administration Building, Syracuse University, Syracuse, NY 13244-1100; (315)443-2941, E-mail: eegray@syr.edu** *Syracuse University is an Equal Opportunity/Affirmative Action Employer.*

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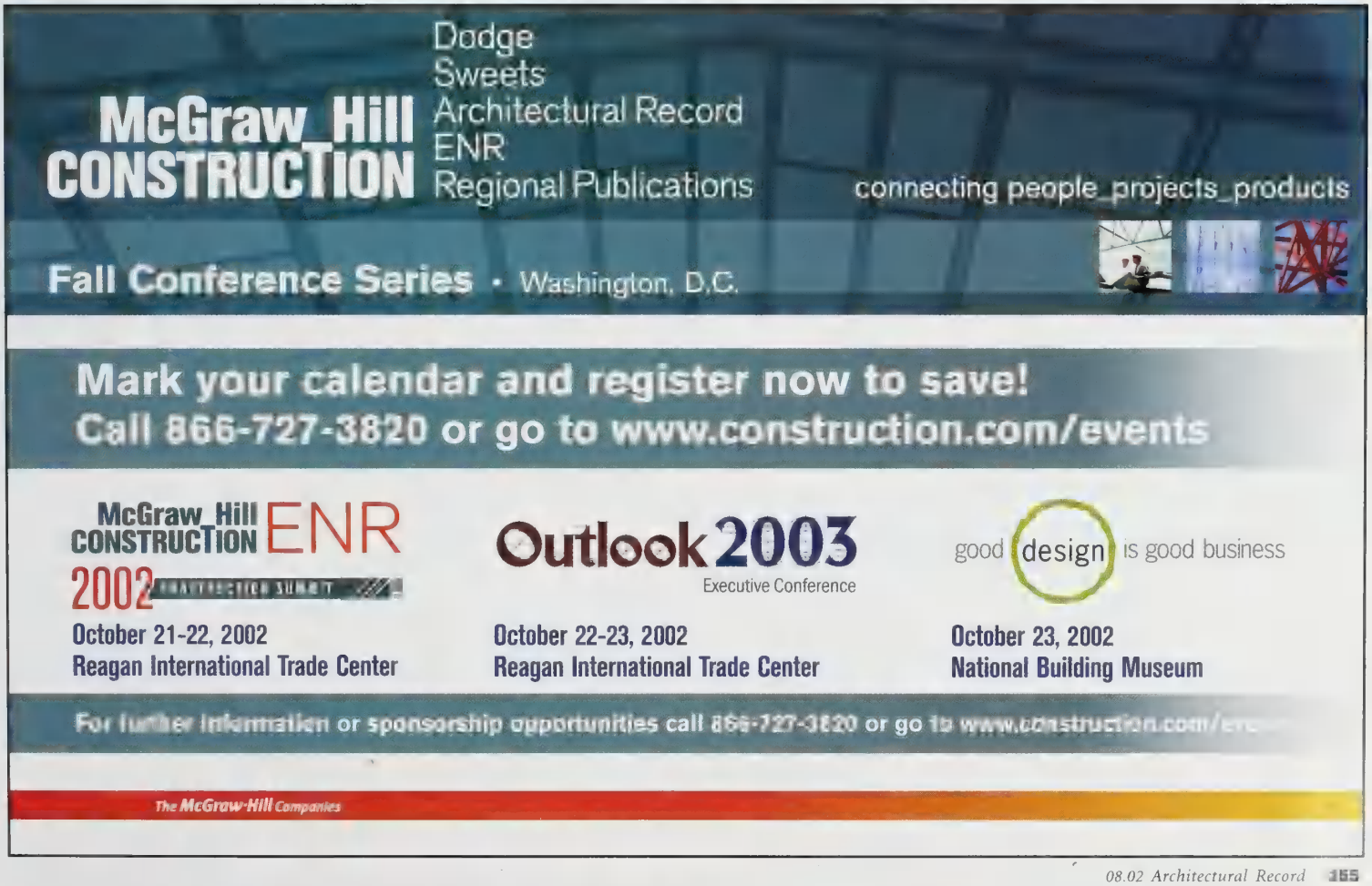
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Patricia Gay: Working hard for preservation in the Big Easy

Interviewed by Ingrid Whitehead

Any major urban city in this country would be fortunate to have Patricia Gay at the helm of its preservation organization. As it happens, New Orleans has the luck. As executive director of the Preservation Resource Center (PRC) of New Orleans, Gay relies less on luck and more on hard work and persistence to convince developers, politicians, and the general public that urban revitalization and preservation of historic architecture and neighborhoods is crucial to the health and welfare of the Big Easy. Passionately committed to preservation, Gay has been with the PRC since its inception in 1974. She plays a big part in the organization's main focus—finding buyers for historic buildings.

Q: *How does New Orleans's Preservation Resource Center work with architects?* I'd like to think that we're "friends of architects." It's buildings that give cities their identity, especially in New Orleans. We have many programs in place to inform people about architecture—programs such as "Where They Lived," which is an initiative to inform the public about historic houses once occupied by jazz musicians. Many of those houses are for sale, and, if they wish, we'll help interested people get in touch with owners. *Preservation in Print*, the monthly magazine we publish with the Louisiana State Historic Preservation Office, is full of interesting information about architecture in New Orleans. When people know the difference between a Creole cottage and a shotgun house, they're more likely to appreciate the architecture of the region, and more likely to want to preserve historic neighborhoods and buildings. Also, since one of the main things we do is try to match people up with historic buildings, we encourage buyers to use architects to renovate.

What makes neighborhoods and buildings in New Orleans special? Every city should have a strong preservation effort. That said, New Orleans has an amazing history, as a city. It is a place where the European approach to living was really established. It was laid out by the French in a typical French military camp plan that still remains today in the Vieux Carré, then it was occupied by the Spanish until the Louisiana Purchase made it the fifth-largest city in the country. It was also the second-largest port after New York, so it always had a very international flavor, and the architecture is very unique in this country.

When, and why, did you get involved in the PRC? I've been with the PRC since it began in 1974, first as a volunteer, and as executive director since 1980. Over the past 28 years we've grown from a staff of two having an annual budget of $100,000 to a staff of 19 full- and part-time employees with an annual budget of $1.4 million.

Do you like developers? We do like developers. Especially the ones who donate the facades of their historic buildings to our Facade Donation Program. They get a tax deduction, and the PRC is then able to review all renovation propositions in perpetuity. There are so many developers and owners that we work with who understand how valuable their property is in terms of preservation.

What gratifies you the most? Probably winning a fight for a building—keeping it from being demolished. Or watching a neighborhood come back. Cities have been making a comeback, you know. It's exciting.

Photograph by Will Michels. For information on the PRC, go to www.prcno.org.

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